

Description

PESTICIDAL PYRIDINECARBOXAMIDE DERIVATIVES

5 The invention relates to 3-pyridylcarboxamide derivatives and their use for the control of pests, in particular arthropods such as insects and acarids, and helminths (including nematodes); to compositions containing them, and to processes and intermediates for their preparation.

10 The control of insects, nematodes or helminths with 3-pyridylcarboxamide compounds has been described in many patents such as EP 580374, JP 10101648, JP 10182625, WO 200109104, WO 200114340, JP 6321903, JP 10195072 and JP 11180957.

15 However, the level of action and/or duration of action of these prior-art compounds is not entirely satisfactory in all fields of application, in particular against certain organisms or when low concentrations are applied.

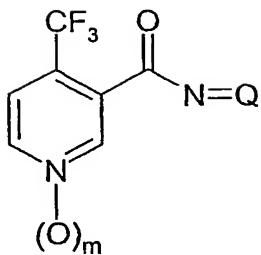
20 Since modern pesticides must meet a wide range of demands, for example regarding level, duration and spectrum of action, use spectrum, toxicity, combination with other active substances, combination with formulation auxiliaries or synthesis, and since the occurrence of resistances is possible, the development of such substances can never be regarded as concluded, and there is constantly a high demand for novel compounds which are advantageous over the known compounds, at least as far as some aspects are concerned.

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It is an object of the present invention to provide compounds which widen the spectrum of the pesticides in various aspects.

30 The present invention provides a compound which is a 3-pyridylcarboxamide derivative of formula (I):

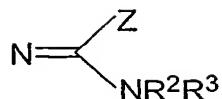
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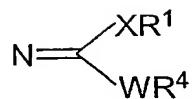
(I)

wherein:

N=Q is a formula (A) or (B):



(A)



(B)

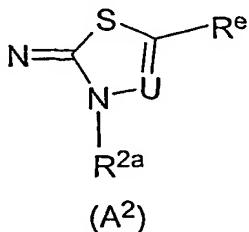
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Z is YR^1 or NR^5R^6 ;

or when Z is YR^1 , R^1 and R^3 may form together with the adjacent $-\text{Y}-\text{C}-\text{NR}^2-$ atoms, a five or six membered saturated heterocyclic ring which optionally contains an additional N or O atom, and is unsubstituted or substituted by one or more R^7 groups

10 or one of the ring carbon atoms may form a carbonyl or imino group, and which ring is optionally fused to a benzene ring optionally substituted by R^7 ;

or when Z is YR^1 , R^1 and R^3 may form together with the adjacent $-\text{Y}-\text{C}-\text{NR}^2-$ atoms, a group (A²):

(A²)

15 Y, X and W are each independently O or S;

or R^1 and R^4 may form together with the adjacent $-\text{X}-\text{C}-\text{W}-$ group, a five or six membered unsaturated, partially saturated or saturated heterocyclic ring, unsubstituted or substituted by one or more R^7 groups or one of the ring carbon atoms may form a carbonyl group;

20 R^1 is (C₁-C₈)alkyl, (C₃-C₆)alkenyl, (C₃-C₆)alkynyl or (C₃-C₈)cycloalkyl, which last four mentioned groups are unsubstituted or substituted by one or more R^8 groups; or is

(C₃-C₈)cycloalkyl-(C₁-C₆)alkyl which cycloalkyl is unsubstituted or substituted by one or more R⁸ groups; or is -(CR⁹R¹⁰)_pR¹¹ or -(CR⁹R¹⁰)_pheterocyclyl; or when Y is O is (C₁-C₆)alkylamino, NH(C₃-C₈)cycloalkyl or NH(CH₂)_sR¹¹;

R^{2a} is (C₁-C₈)alkyl, (C₃-C₆)alkenyl, (C₃-C₆)alkynyl, (C₃-C₈)cycloalkyl, (C₁-C₆)alkoxy,

5 (C₃-C₆)alkenyloxy, (C₃-C₆)alkynyloxy, (C₁-C₆)alkylamino, di-(C₁-C₆)alkylamino, NHCO(C₁-C₆)alkyl, NHSO₂(C₁-C₆)alkyl, CO(C₁-C₆)alkyl or SO₂(C₁-C₆)alkyl which last thirteen mentioned groups are unsubstituted or substituted by one or more R⁸ groups; or is (C₃-C₈)cycloalkyl-(C₁-C₆)alkyl which cycloalkyl is unsubstituted or substituted by one or more R⁸ groups; or is -(CR⁹R¹⁰)_pR¹¹, -(CR⁹R¹⁰)_pheterocyclyl,

10 OH, SO₂R¹¹, NH₂, NHCOR¹¹, NHR¹¹, NH(C₃-C₈)cycloalkyl, NH(CH₂)_sR¹¹, O(CHR¹⁰)_rR¹¹; O(CH₂)_rheterocyclyl or N=C[(C₁-C₆)alkyl]₂; or is (C₃-C₆)alkenyl substituted by R¹¹;

R² and R⁵ are each independently R^{2a} or H;

R³ and R⁶ are each independently H or R¹;

15 R⁴ is (C₁-C₆)alkyl substituted by R⁸; or is (C₃-C₆)alkenyl, (C₃-C₆)alkynyl or (C₃-C₈)cycloalkyl which last three mentioned groups are unsubstituted or substituted by one or more R⁸ groups; or is (C₃-C₈)cycloalkyl-(C₁-C₆)alkyl unsubstituted or substituted by one or more R⁸ groups; or is -(CR⁹R¹⁰)_pR¹¹ or -(CR⁹R¹⁰)_pheterocyclyl; or when W is O, R⁴ is (C₁-C₆)alkylamino;

20 or R² and R³ together with the adjacent N atom form a 3 to 8-membered unsaturated, partially saturated or saturated heterocyclic ring which optionally contains up to three additional N, O or S atoms and which ring is unsubstituted or substituted by one or more R⁷ groups (preferred examples of such ring systems include pyrrolidin-1-yl, piperidin-1-yl, 4,5-dihydropyrazol-1-yl, morpholin-1-yl,

25 thiomorpholin-1-yl or its S-oxide or S, S-dioxide);

R⁷ is R⁸, R⁴, (C₁-C₆)alkyl or CH₂OH;

R⁸ is halogen, (C₁-C₆)alkoxy, (C₁-C₆)haloalkoxy, S(O)_nR¹², CN, CO₂(C₁-C₆)alkyl, CO₂H, NO₂, OH, amino, (C₁-C₆)alkylamino, di-(C₁-C₆)alkylamino, carbamoyl, (C₁-C₆)-alkylcarbamoyl, di-(C₁-C₆)-alkylcarbamoyl, CH[O(C₁-C₆)alkyl]₂, (C₃-C₆)alkenyloxy, (C₃-C₆)alkynyloxy or O(CH₂)_rR¹¹;

30 R⁹ and R¹⁰ are each independently H, (C₁-C₆)alkyl or (C₁-C₆)haloalkyl;

R^{11} is aryl unsubstituted or substituted by one or more groups selected from (C_1-C_6)alkyl, (C_1-C_6)haloalkyl, (C_2-C_6)alkenyl, (C_2-C_6)alkynyl, (C_3-C_8)cycloalkyl, $-(CH_2)_uR^{13}$, heterocyclyl, halogen, (C_1-C_6)alkoxy, (C_1-C_6)haloalkoxy, $S(O)_nR^{12}$, CN,

$CO_2(C_1-C_6)$ alkyl, NO_2 , amino, (C_1-C_6)alkylamino and di- (C_1-C_6) alkylamino;

5 R^{12} is (C_1-C_6) alkyl or (C_1-C_6) haloalkyl;

R^{13} is phenyl unsubstituted or substituted by one or more groups selected from halogen, (C_1-C_6)alkyl and (C_1-C_6)haloalkyl;

R^e is H, (C_1-C_6)alkyl, (C_2-C_6)alkenyl, (C_2-C_6)alkynyl, (C_3-C_8)cycloalkyl, (C_3-C_8)cycloalkyl- (C_1-C_6) alkyl, halogen, (C_1-C_6)alkoxy, (C_1-C_6)haloalkoxy, $S(O)_nR^{12}$, (C_3-C_6)alkenyloxy, (C_3-C_6)alkynyloxy, $-(CH_2)_pR^{11}$, heterocyclyl, CN, $CO_2(C_1-C_6)$ alkyl,

10 NO_2 , amino, (C_1-C_6)alkylamino, di- (C_1-C_6) alkylamino or $O(CH_2)_rR^{11}$ wherein r is 0 or 1;

U is N or CH,

m, s and u are each independently 0 or 1;

15 n is 0, 1 or 2;

p is 0, 1, 2 or 3;

r is 0 or an integer from 1 to 6; and each heterocyclyl in the above mentioned radicals is independently a mono or bicyclic heterocyclic radical having 3 to 7 ring atoms in each ring and 1 to 4 hetero atoms selected from N, O and S;

20 with the proviso that in (A) when Z is NR^5R^6 then up to three of R^2 , R^3 , R^5 and R^6 are not simultaneously H;

or a pesticidally acceptable salt thereof.

These compounds possess valuable pesticidal properties.

25 The invention also encompasses any stereoisomer, enantiomer or geometric isomer, and mixtures thereof.

By the term "pesticidally acceptable salts" is meant salts the cations or anions of which are known and accepted in the art for the formation of salts for pesticidal or

30 horticultural use. Suitable salts with bases, e.g. formed by compounds of formula (I) containing a carboxy or OH group, include alkali metal (e.g. sodium and potassium), alkaline earth metal (e.g. calcium and magnesium), ammonium and amine (e.g.

diethanolamine, triethanolamine, octylamine, morpholine and dioctylmethylamine) salts. Suitable acid addition salts, e.g. formed by compounds of formula (I) containing an amino group, include salts with inorganic acids, for example hydrochlorides, sulphates, phosphates and nitrates and salts with organic acids for example acetic acid.

5 In the present patent specification, including the accompanying claims, the aforementioned substituents have the following meanings:

halogen atom means fluorine, chlorine, bromine or iodine;

10 alkyl groups and portions thereof (unless otherwise defined) may be straight- or branched-chain;

cycloalkyl groups preferably have from three to six carbon atoms in the ring and are optionally substituted by halogen or alkyl.

The haloalkyl and haloalkoxy groups bear one or more halogen atoms; preferred

15 groups of this type include $-CF_3$ and $-OCF_3$.

The term "halo" before the name of a radical means that this radical is partially or completely halogenated, that is to say, substituted by F, Cl, Br, or I, in any combination, preferably by F or Cl.

The expression " (C_1-C_6) -alkyl" is to be understood as meaning an unbranched or

20 branched hydrocarbon radical having 1, 2, 3, 4, 5 or 6 carbon atoms, such as, for example a methyl, ethyl, propyl, isopropyl, 1-butyl, 2-butyl, 2-methylpropyl or tert-butyl radical.

" (C_1-C_6) -Haloalkyl" is to be understood as meaning an alkyl group mentioned under

25 the expression " (C_1-C_6) -alkyl" in which one or more hydrogen atoms are replaced by the same number of identical or different halogen atoms, preferably by chlorine or fluorine, such as the trifluoromethyl, the 1-fluoroethyl, the 2,2,2-trifluoroethyl, the chloromethyl, fluoromethyl, the difluoromethyl or the 1,1,2,2-tetrafluoroethyl group.

30 " (C_1-C_6) -Alkoxy" is to be understood as meaning an alkoxy group whose hydrocarbon radical has the meaning given under the expression " (C_1-C_6) -alkyl".

The terms "alkenyl" and "alkynyl" with a range of carbon atoms stated as prefix denote a straight-chain or branched hydrocarbon radical having a number of carbon atoms which corresponds to this stated range and which contains at least one multiple bond which can be located in any position of the respective unsaturated radical. "(C₂-C₆)-Alkenyl" accordingly denotes, for example, the vinyl, allyl, 2-methyl-2-propenyl, 2-butenyl, pentenyl, 2-methylpentenyl or the hexenyl group. "(C₂-C₆)-Alkynyl" denotes, for example, the ethynyl, propargyl, 2-methyl-2-propynyl; 2-butynyl; 2-pentynyl or the 2-hexynyl group.

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"(C₃-C₈)-Cycloalkyl" denotes monocyclic alkyl radicals, such as the cyclopropyl, cyclobutyl, cyclopentyl, cyclohexyl, cycloheptyl or cyclooctyl radical, and denotes bicyclic alkyl radicals, such as the norbornyl radical.

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The expression "(C₃-C₈)-cycloalkyl-(C₁-C₆)-alkyl" is to be understood as meaning, for example the cyclopropylmethyl, cyclopentylmethyl, cyclohexylmethyl, cyclohexylethyl, cyclohexylbutyl, 1-methylcyclopropyl, 1-methylcyclopentyl, 1-methylcyclohexyl, 3-hexylcyclobutyl or the 4-tert-butylcyclohexyl radical.

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"(C₁-C₆)-Alkylamino" denotes a nitrogen atom which is substituted by an alkyl radical of the above definition. "Di-(C₁-C₆)-alkylamino" denotes a nitrogen atom which is substituted by two alkyl radical of the above definition.

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The expression "(C₁-C₆)-alkylcarbamoyl" denotes a carbamoyl group having one hydrocarbon radical which has the meaning given under the expression "(C₁-C₆)-alkyl"; and "di-(C₁-C₆)-alkylcarbamoyl" denotes a carbamoyl group having two hydrocarbon radicals which can be identical or different.

25

The expression "aryl" is to be understood as meaning a carbocyclic, i.e. constructed of carbon atoms, aromatic radical having preferably 6 to 14, in particular 6 to 12, carbon atoms, such as, for example, phenyl, naphthyl or biphenyl, preferably phenyl.

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The expression "heterocycl" preferably denotes a cyclic radical which can be completely saturated, partially unsaturated or completely unsaturated and which contains in the ring one or more identical or different atoms selected from the group consisting of nitrogen, sulfur and oxygen, where, however, two oxygen atoms may

5 not be directly adjacent and at least one carbon atom has to be present in the ring, such as, for example, a thiophene, furan, pyrrole, thiazole, oxazole, imidazole, isothiazole, isoxazole, pyrazole, 1,3,4-oxadiazole, 1,3,4-thiadiazole, 1,3,4-triazole, 1,2,4-oxadiazole, 1,2,4-thiadiazole, 1,2,4-triazole, 1,2,3-triazole, 1,2,3,4-tetrazole, 10 benzodioxane, benzo[c]furan, indole, benzo[c]thiophene, 1,3-benzodioxole, 1,3-benzodioxane, benzo[c]furan, isoindole, benzoxazole, benzothiazole, benzimidazole, benzisoxazole, benzisothiazole, benzopyrazole, benzothiadiazole, benzotriazole, dibenzofuran, dibenzothiophene, carbazole, pyridine, pyrazine, pyrimidine, pyridazine, 1,3,5-triazine, 1,2,4-triazine, 1,2,4,5-tetrazine, quinoline, isoquinoline, quinoxaline, quinazoline, cinnoline, 1,8-naphthyridine, 1,5-naphthyridine, 15 1,6-naphthyridine, 1,7-naphthyridine, phthalazine, pyridopyrimidine, purine, pteridine, 4H-quinolizine, piperidine, pyrrolidine, oxazoline, tetrahydrofuran, tetrahydropyran, isoxazolidine, thiazolidine, oxirane or oxetane radical.

Heterocycl preferably denotes a saturated, partially saturated or aromatic ring system having 3 to 7 ring atoms and 1 to 4 heteroatoms selected from the group consisting of O, S and N, where at least one carbon atom has to be present in the ring.

More preferably, heterocycl denotes a pyridine, pyrimidine, (1,2,4)-oxadiazole, 25 (1,3,4)-oxadiazole, pyrrole, furan, thiophene, oxazole, thiazole, imidazole, pyrazole, isoxazole, 1,2,4-triazole, tetrazole, pyrazine, pyridazine, oxazoline, thiazoline, tetrahydrofuran, tetrahydropyran, morpholine, piperidine, piperazine, pyrrolidine, pyrrolidine, oxazolidine, thiazolidine, oxirane, oxetane, 1,3-benzodioxole or 1,3-benzodioxane radical.

30

Preferred substituents for the various aliphatic, aromatic and heterocyclic ring systems include halogen, nitro, cyano, (C₁-C₄)-alkyl, (C₃-C₆)-cycloalkyl, (C₁-C₄)-

alkoxy, (C₁-C₄)-alkylthio, (C₁-C₄)-alkylsulfinyl, (C₁-C₄)-alkylsulfonyl, phenyl, benzyl and phenoxy, where in the alkyl radicals and the radicals derived therefrom one or more – and in the case of fluorine up to the maximum number of – hydrogen atoms can be replaced by halogen, preferably chlorine or fluorine.

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Particularly preferred substituents include halogen, nitro, cyano, (C₁-C₄)-alkyl, (C₁-C₄)-haloalkyl, (C₃-C₆)-cycloalkyl, (C₁-C₄)-alkoxy, (C₁-C₄)-haloalkoxy, (C₁-C₄)-alkylthio and (C₁-C₄)-haloalkylthio.

10 It is to be generally understood, unless otherwise stated, that the term “unsubstituted or substituted by one or more groups” or “unsubstituted or substituted by one or more groups selected from” means that such groups (or preferred groups) may be the same or different.

15 The term pests means arthropod pests (including insects and acarids), and helminths (including nematodes).

Preferably Z is YR¹;

or preferably when Z is YR¹, R¹ and R³ may form together with the adjacent

20 -Y-C-NR²- atoms, a five or six membered saturated heterocyclic ring which optionally contains an additional N or O atom, and is unsubstituted or substituted by one or more R⁷ groups or one of the ring carbon atoms may form a carbonyl or imino group, and which ring is optionally fused to a benzene ring optionally substituted by R⁷; preferably one of X and W is O and the other is S;

25 or preferably R¹ and R⁴ may form together with the adjacent -X-C-W- group, a five or six membered unsaturated, partially saturated or saturated heterocyclic ring, unsubstituted or substituted by one or more R⁷ groups or one of the ring carbon atoms may form a carbonyl group.

30 Preferably R¹ is (C₁-C₈)alkyl or (C₃-C₆)alkenyl, which groups are unsubstituted or substituted by one or more groups selected from (C₁-C₄)alkoxy, S(O)_nR¹² and OH; or is -(CR⁹R¹⁰)_pR¹¹ (more preferably R¹ is (C₁-C₈)alkyl, (C₃-C₆)alkenyl or -(CR⁹R¹⁰)_pR¹¹).

Preferably R² is H, (C₃-C₆)alkenyl, (C₃-C₆)alkynyl, (C₁-C₆)alkoxy, (C₃-C₆)alkenyloxy, (C₃-C₆)alkynyloxy, -(CR⁹R¹⁰)_pR¹¹, -(CR⁹R¹⁰)_pheterocyclyl, NHR¹¹ or O(CH₂)_rR¹¹; or is (C₁-C₈)alkyl unsubstituted or substituted by a di-(C₁-C₄)alkylamino group; (more preferably R² is (C₁-C₈)alkyl, (C₃-C₆)alkenyl, (C₁-C₆)alkoxy, -(CR⁹R¹⁰)_pR¹¹, 5 -(CR⁹R¹⁰)_pheterocyclyl or O(CH₂)_rR¹¹).

Preferably R³ is (C₁-C₈)alkyl or (C₃-C₆)alkenyl, which groups are unsubstituted or substituted by an (C₁-C₄)alkoxy or OH group; or is H or -(CR⁹R¹⁰)_pR¹¹ (more preferably R³ is H, (C₁-C₈)alkyl, (C₃-C₆)alkenyl or -(CH₂)_pR¹¹).

Preferably R⁴ is (C₁-C₈)alkyl substituted by (C₁-C₄)alkoxy or OH; or is (C₃-C₆)alkenyl, 10 (C₃-C₆)alkynyl or (C₃-C₈)cycloalkyl which last three mentioned groups are unsubstituted or substituted by an (C₁-C₄)alkoxy or OH group; or is (C₃-C₈)cycloalkyl-(C₁-C₆)alkyl which cycloalkyl is unsubstituted or substituted by an (C₁-C₄)alkoxy or OH group; or is -(CR⁹R¹⁰)_pR¹¹ or -(CR⁹R¹⁰)_pheterocyclyl (more preferably R⁴ is (C₁-C₈)alkyl, (C₃-C₆)alkenyl or -(CH₂)_pphenyl); 15 or preferably R² and R³ together with the adjacent N atom form a 3 to 8-membered unsaturated, partially saturated or saturated heterocyclic ring which optionally contains up to three additional N, O or S atoms and which ring is unsubstituted or substituted by one or more R⁷ groups (preferred examples of such ring systems include pyrrolidin-1-yl, piperidin-1-yl, morpholin-1-yl, thiomorpholin-1-yl or 4,5-dihydropyrazol-1-yl).

Preferably R⁷ is (C₁-C₄)alkoxy, OH, R⁴, (C₁-C₄)alkyl or CH₂OH.

Preferably R⁸ is (C₁-C₄)alkoxy or OH.

Preferably R⁹ and R¹⁰ which may be the same or different, are each independently selected from H, (C₁-C₄)alkyl and (C₁-C₄)haloalkyl.

25 Preferably R¹¹ is phenyl unsubstituted or substituted by one or more groups selected from (C₁-C₄)alkyl, (C₁-C₄)haloalkyl, (C₂-C₄)alkenyl, (C₂-C₄)alkynyl, (C₃-C₆)cycloalkyl, -(CH₂)_uR¹³, heterocyclyl, halogen, (C₁-C₄)alkoxy, (C₁-C₄)haloalkoxy, S(O)_nR¹², CN, CO₂(C₁-C₄)alkyl, NO₂, amino, (C₁-C₄)alkylamino and di-(C₁-C₄)alkylamino; (more preferably R¹¹ is phenyl unsubstituted or substituted by one or more groups selected from (C₁-C₄)alkyl, halogen, (C₁-C₄)alkoxy, NO₂ and amino).

30 Preferably R¹² is (C₁-C₄)alkyl or (C₁-C₄)haloalkyl.

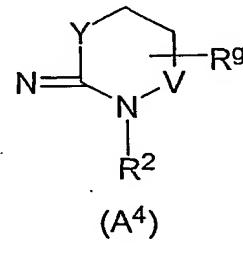
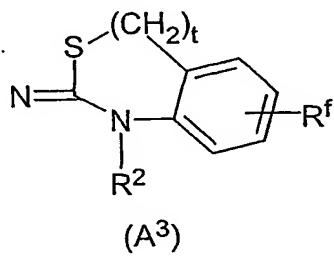
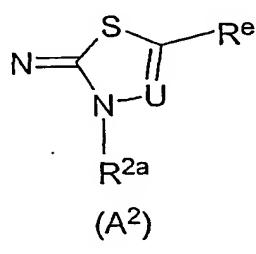
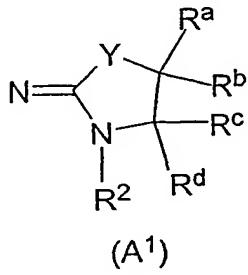
Preferably m is 0.

Preferably p, r, s and u are each independently 0 or 1.

Preferably each heterocyclyl in the above mentioned radicals is independently a heterocyclic radical having 3 to 7 ring atoms and 1 to 4 hetero atoms selected from N, O and S;

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A preferred embodiment of the invention comprises compounds of formula (I) wherein N=Q is a formula (A) in which Z is YR¹ and R¹ and R³ form together with the adjacent -Y-C-NR²- atoms, a heterocyclic ring which is of formula (A¹), (A²), (A³) or (A⁴):



10

wherein:

Y is O or S;

U is N or CH;

V is O or CH₂;

15 t is 0 or 1;

R^a, R^b, R^c and R^d are each independently selected from H, (C₁-C₆)alkyl, (C₁-C₆)haloalkyl, (C₂-C₆)alkenyl, (C₂-C₆)alkynyl, (C₃-C₈)cycloalkyl, halogen, (C₁-C₆)alkoxy, (C₁-C₆)haloalkoxy, S(O)_nR¹², (C₂-C₆)alkenyloxy, (C₂-C₆)alkynyloxy, R¹¹, heterocyclyl and O(CH₂)_rR¹¹ wherein r is 0 or 1;

20 or R^a and R^b, or R^c and R^d may form a carbonyl or imino group (more preferably R^a, R^b, R^c and R^d are each independently selected from H, (C₁-C₆)alkyl, (C₁-C₆)alkoxy and R¹¹; or R^a and R^b, or R^c and R^d may form a carbonyl or imino group; most preferably R^a, R^b, R^c and R^d are each H or R^c and R^d form a carbonyl group, or R^a and R^b form an imino group);

25 R^e and R^f are each independently selected from H, (C₁-C₆)alkyl, (C₂-C₆)alkenyl, (C₂-C₆)alkynyl, (C₃-C₈)cycloalkyl, (C₃-C₈)cycloalkyl-(C₁-C₆)alkyl, halogen, (C₁-C₆)alkoxy, (C₁-C₆)haloalkoxy, S(O)_nR¹², (C₂-C₆)alkenyloxy, (C₂-C₆)alkynyloxy, -(CH₂)_pR¹¹,

heterocyclil, CN, $\text{CO}_2(\text{C}_1\text{-C}_6)\text{alkyl}$, NO_2 , amino, $(\text{C}_1\text{-C}_6)\text{alkylamino}$, di- $(\text{C}_1\text{-C}_6)\text{alkylamino}$ and $\text{O}(\text{CH}_2)_r\text{R}^{11}$ wherein r is 0 or 1 (more preferably R^e and R^f are each independently selected from H, $(\text{C}_1\text{-C}_6)\text{alkyl}$, $(\text{C}_1\text{-C}_6)\text{haloalkyl}$, halogen and R^{11} ; most preferably R^e and R^f are each H);

5 R^g is H, $(\text{C}_1\text{-C}_6)\text{alkyl}$, halogen, $(\text{C}_1\text{-C}_6)\text{alkoxy}$, $\text{CO}_2(\text{C}_1\text{-C}_6)\text{alkyl}$ or R^{11} (more preferably R^g is H);
 R^{2a} is $(\text{C}_1\text{-C}_6)\text{alkyl}$ unsubstituted or substituted by one or more groups selected from halogen, $(\text{C}_1\text{-C}_6)\text{alkoxy}$, $\text{CH}[\text{O}(\text{C}_1\text{-C}_6)\text{alkyl}]_2$, CN, $\text{CO}_2(\text{C}_1\text{-C}_6)\text{alkyl}$ and CO_2H ; or is $(\text{C}_3\text{-C}_6)\text{alkenyl}$ unsubstituted or substituted by one or more halogen or phenyl

10 groups; or is $(\text{C}_3\text{-C}_6)\text{alkynyl}$, $(\text{C}_3\text{-C}_8)\text{cycloalkyl}$, $(\text{C}_3\text{-C}_8)\text{cycloalkyl-}(\text{C}_1\text{-C}_6)\text{alkyl}$, $(\text{C}_1\text{-C}_6)\text{alkoxy}$, $(\text{C}_3\text{-C}_6)\text{alkenyloxy}$ or $(\text{C}_3\text{-C}_6)\text{alkynyloxy}$; or is $-(\text{CHR}^{10})_p\text{R}^{11}$ wherein R^{10} is H or $(\text{C}_1\text{-C}_8)\text{alkyl}$, p is 0 or 1 and R^{11} is phenyl unsubstituted or substituted by one or more groups selected from halogen, $(\text{C}_1\text{-C}_6)\text{haloalkyl}$, $(\text{C}_1\text{-C}_6)\text{alkoxy}$, $(\text{C}_1\text{-C}_6)\text{haloalkoxy}$ and phenoxy unsubstituted or substituted by one or more groups

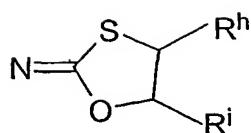
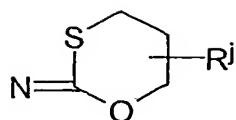
15 selected from halogen and $(\text{C}_1\text{-C}_6)\text{haloalkyl}$; or is $\text{O}(\text{CHR}^{10})_r\text{R}^{11}$ wherein R^{10} is H or $(\text{C}_1\text{-C}_6)\text{alkyl}$, r is 1 and R^{11} is phenyl unsubstituted or substituted by one or more groups selected from $(\text{C}_1\text{-C}_6)\text{haloalkyl}$, $(\text{C}_1\text{-C}_6)\text{alkoxy}$ and NO_2 ; (more preferably R^{2a} is $(\text{C}_1\text{-C}_6)\text{alkyl}$, $(\text{C}_2\text{-C}_6)\text{alkenyl}$ or CH_2phenyl ; or phenyl unsubstituted or substituted by one or more halogen or $(\text{C}_1\text{-C}_6)\text{haloalkyl}$ groups; or is $(\text{C}_2\text{-C}_6)\text{alkenyl}$

20 unsubstituted or substituted by a phenyl group; or is $\text{CH}_2\text{CO}_2\text{H}$ or $\text{CH}_2\text{CO}_2(\text{C}_1\text{-C}_6)\text{alkyl}$; and

R^2 is R^{2a} or H (more preferably R^2 is H, $(\text{C}_1\text{-C}_6)\text{alkyl}$, $(\text{C}_3\text{-C}_6)\text{alkenyl}$, $(\text{C}_1\text{-C}_6)\text{alkoxy}$ or CH_2phenyl ; or is phenyl unsubstituted or substituted by one or more halogen or $(\text{C}_1\text{-C}_6)\text{haloalkyl}$ groups; or is $(\text{C}_3\text{-C}_6)\text{alkenyl}$ unsubstituted or substituted by a phenyl group; or is $\text{CH}_2\text{CO}_2\text{H}$ or $\text{CH}_2\text{CO}_2(\text{C}_1\text{-C}_6)\text{alkyl}$); most preferably R^2 is H, $(\text{C}_1\text{-C}_6)\text{alkyl}$, $(\text{C}_3\text{-C}_6)\text{alkenyl}$, $(\text{C}_1\text{-C}_6)\text{alkoxy}$, CH_2phenyl or phenyl).

25 A further preferred embodiment of the invention comprises compounds of formula (I) wherein N=Q is a formula (B) in which R^1 and R^4 form together with the adjacent -X-C-W- group, a heterocyclic ring of formula (B¹) or (B²):

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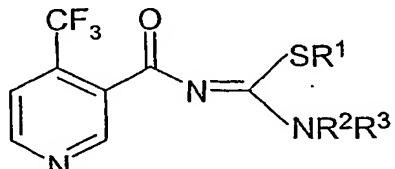
(B¹)(B²)

wherein:

R^h, Rⁱ and R^j are each independently H, (C₁-C₆)alkyl, halogen, (C₁-C₆)alkoxy, CO₂(C₁-C₆)alkyl or R¹¹ (more preferably R^h, Rⁱ and R^j are each independently H or

5 (C₁-C₆)alkyl).

A more preferred class of compounds of formula (I) are of formula (Ia):

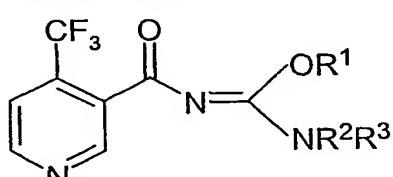


(Ia)

10 wherein R¹ is (C₃-C₆)alkenyl, (C₃-C₆)haloalkenyl, (C₃-C₆)alkynyl or (C₃-C₈)cycloalkyl-(C₁-C₆)alkyl; or is (C₁-C₆)alkyl unsubstituted or substituted by one or more CO₂(C₁-C₆)alkyl or CH[O(C₁-C₆)alkyl]₂ groups; or is -(CHR¹⁰)R¹¹ wherein R¹⁰ is H or (C₁-C₆)alkyl, and R¹¹ is phenyl unsubstituted or substituted by one or more halogen or (C₁-C₆)haloalkyl groups;

15 R² is (C₁-C₆)alkyl, phenyl or N=C[(C₁-C₆)alkyl]₂; or is CH₂R¹¹ where R¹¹ is phenyl unsubstituted or substituted by one or more halogen groups; and R³ is H, (C₁-C₆)alkyl or phenyl; or R² and R³ together with the adjacent N atom form a pyrrolidin-1-yl, piperidin-1-yl or morpholin-1-yl ring.

20 A more preferred class of compounds of formula (I) are of formula (Ib):



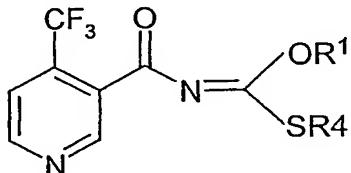
(Ib)

wherein R¹ is (C₁-C₆)alkyl unsubstituted or substituted by a S(O)_nR¹² group;

R^2 is (C_3-C_6) alkenyl, (C_3-C_6) alkynyl, (C_3-C_8) cycloalkyl, (C_3-C_8) cycloalkyl- (C_1-C_6) alkyl, (C_1-C_6) alkoxy or (C_3-C_6) alkenyloxy; or is (C_1-C_8) alkyl unsubstituted or substituted by one or more groups selected from halogen, (C_1-C_6) alkoxy, di- (C_1-C_6) alkylamino, CN, $CH[O(C_1-C_6)alkyl]_2$, phenyl and phenoxy; or is NHR^{11} wherein R^{11} is phenyl unsubstituted or substituted by one or more (C_1-C_6) haloalkyl groups; or is $-(CHR^{10})R^{11}$ wherein R^{10} is H or (C_1-C_6) alkyl, and R^{11} is phenyl unsubstituted or substituted by one or more halogen, (C_1-C_6) alkyl or (C_1-C_6) haloalkyl groups; or is $-CH_2$ heterocyclyl wherein heterocyclyl is thienyl, pyridyl, furyl or 1,3-benzodioxolanyl; or is OCH_2 heterocyclyl wherein heterocyclyl is benzo-1,3-dioxanyl unsubstituted or substituted by one or more halogen groups; and

10 R^3 is H or (C_1-C_6) alkyl.

A more preferred class of compounds of formula (I) are of formula (Ic):



15 (Ic)

wherein R^1 is (C_3-C_6) alkenyl or (C_3-C_6) alkynyl; or is $-(CHR^{10})R^{11}$ wherein R^{10} is (C_1-C_6) alkyl, and R^{11} is phenyl unsubstituted or substituted by one or more (C_1-C_6) haloalkyl groups; and

20 R^4 is (C_1-C_6) alkylamino; or is (C_1-C_6) alkyl unsubstituted or substituted by one or two (C_1-C_6) alkoxy or $S(O)_nR^{12}$ groups.

A more preferred class of compounds of formula (I) are those in which N=Q is a formula (A¹) above, wherein:

R^a and R^b are each H or (C_1-C_6) alkyl, or R^a and R^b form an imino group;

25 R^c is H, (C_1-C_6) alkyl, (C_1-C_6) alkoxy or phenyl;

R^d is H or (C_1-C_6) alkyl; or R^a and R^b or R^c and R^d may form a carbonyl group;

Y is O or S; and

R^2 is H, (C_1-C_6) alkyl or CH_2 phenyl; or phenyl unsubstituted or substituted by one or more halogen groups; or (C_3-C_6) alkenyl substituted by phenyl.

A further more preferred class of compounds of formula (I) are those in which N=Q is a formula (A²) above, wherein:

R^e is H, (C₁-C₆)alkyl, (C₁-C₆)haloalkyl or phenyl;

U is N or CH; and

5 R^{2a} is (C₁-C₆)alkyl, CH₂CO₂H, CH₂CO₂(C₁-C₆)alkyl or CH₂phenyl; or is phenyl unsubstituted or substituted by one or more (C₁-C₆)haloalkyl groups; or is (C₃-C₆)alkenyl unsubstituted or substituted by a phenyl group.

A further more preferred class of compounds of formula (I) are those in which N=Q is

10 a formula (A³) above, wherein:

R^f is H or halogen;

t is 0 or 1; and

R² is H, (C₃-C₆)alkenyl or CH₂phenyl.

15 A further more preferred class of compounds of formula (I) are those in which N=Q is a formula (A⁴) above, wherein:

R^g is H;

Y is O or S;

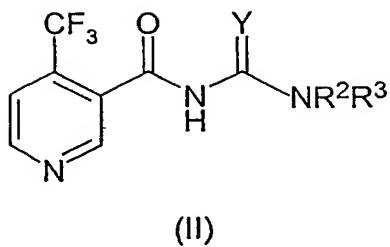
V is O or CH₂; and

20 R² is H.

The compounds of general formula (I) can be prepared by the application or adaptation of known methods (i.e. methods heretofore used or described in the chemical literature.

25 In the following description of processes when symbols appearing in formulae are not specifically defined, it is understood that they are "as defined above" in accordance with the first definition of each symbol in the specification.

According to a feature of the invention compounds of formula (I) wherein N=Q is a formula (A) in which Z is YR¹, m is zero, and R¹, R² and R³ are as defined above, 30 may be prepared by the reaction of a compound of formula (II):



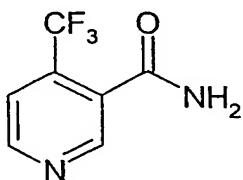
wherein Y, R² and R³ are as defined above, with a compound of formula (III):



5 wherein R¹ is as defined above and L is a leaving group generally halogen and preferably chlorine or bromine. The reaction is generally performed in the presence of an organic base such as a tertiary amine for example triethylamine, or pyridine, or an inorganic base such as an alkali metal carbonate, for example potassium carbonate, or an alkali metal alkoxide such as sodium ethoxide, or sodium hydride,

10 in a solvent such as dioxan, tetrahydrofuran or N,N-dimethylformamide, at a temperature of from 0° to 100°C (preferably 0° to 50°C).

According to a further feature of the invention compounds of formula (I) wherein N=Q is a formula (A) in which Z is YR¹, m is zero, R³ is H, and R¹ and R² are as defined above, may be prepared in a 1-pot process by the reaction of a compound of formula (IV):



(IV)

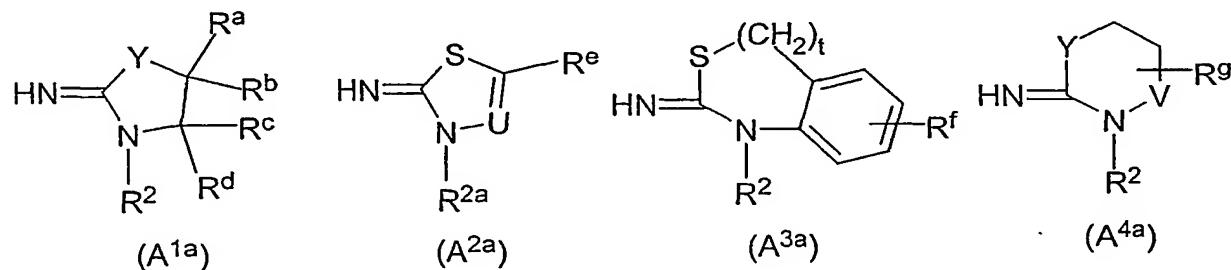
with a strong base such as sodium hydride, and an isothiocyanate or isocyanate compound of formula (V):



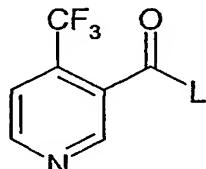
wherein R² is as defined above, in an inert solvent such as N,N-dimethylformamide, at a temperature of from 0° to 60°C, to give the corresponding acylthiourea or acylurea intermediate of formula (II) above wherein R³ is H, which is generally not isolated, and is reacted with a compound of formula (III) as described above. The

reaction is generally performed in an inert solvent such as N,N-dimethylformamide at a temperature of from 0° to 60°C.

According to a further feature of the invention compounds of formula (I) wherein N=Q 5 is a formula (A) which is a heterocyclic ring of formula (A¹), (A²), (A³) or (A⁴), wherein the various symbols are as defined above, may be prepared by the acylation of the corresponding compound of formula (A^{1a}), (A^{2a}), (A^{3a}) or (A^{4a}):



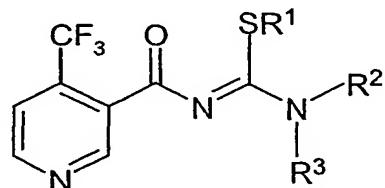
wherein the various symbols are as defined above, with a compound of formula (VI):



(VI)

wherein L is a leaving group, generally halogen and preferably chlorine. The reaction is generally performed in a solvent such as dichloromethane, at a temperature of from 0° to 100°C (preferably 0° to 50°C).

According to a further feature of the invention compounds of formula (I) wherein N=Q is a formula (A) in which Z is NR⁵R⁶, m is zero, and R², R³, R⁵ and R⁶ are as defined above, may be prepared by the reaction of a compound of formula (VII):



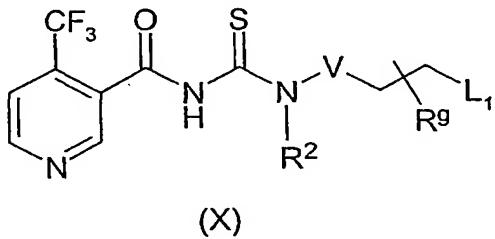
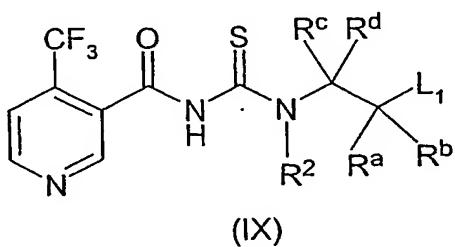
(VII)

wherein R¹, R² and R³ are as defined above, with a compound of formula (VIII):



wherein R^5 and R^6 are as defined above. The reaction is generally performed in the presence of an organic base such as a tertiary amine for example triethylamine, or pyridine, or an inorganic base such as an alkali metal carbonate, for example 5 potassium carbonate, or an alkali metal alkoxide such as sodium ethoxide, or sodium hydride, in a solvent such as dioxan, tetrahydrofuran or *N,N*-dimethylformamide, at a temperature of from 0° to 100°C (preferably 0° to 50°C).

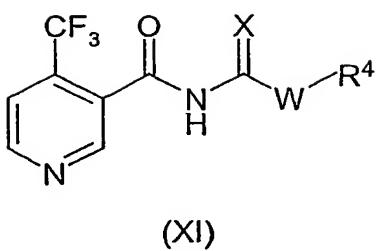
According to a further feature of the invention compounds of formula (I) wherein $\text{N}=\text{Q}$ 10 is a formula (A) which is a heterocyclic ring of formula (A^1) or (A^4), m is zero, Y is S and the other symbols are as defined above, may be prepared by the cyclisation reaction of a compound of formula (IX) or (X) respectively:



wherein the various symbols are as defined above and L_1 is a leaving group, 15 generally halogen and preferably chlorine or bromine. The reaction is generally performed in the presence of an organic base such as a tertiary amine for example triethylamine, or pyridine, or an inorganic base such as an alkali metal carbonate, for example potassium carbonate, or an alkali metal alkoxide such as sodium ethoxide, or sodium hydride, in a solvent such as dioxan, tetrahydrofuran or *N,N*-20 dimethylformamide, at a temperature of from 0° to 100°C (preferably 0° to 50°C).

According to a further feature of the invention compounds of formula (I) wherein m is zero and $\text{N}=\text{Q}$ is a formula (B) in which R^1 and R^4 are as defined above, may be prepared by the reaction of a compound of formula (XI):

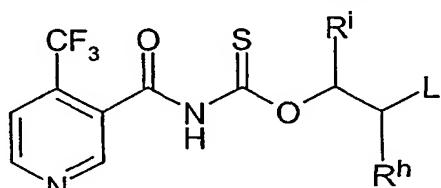
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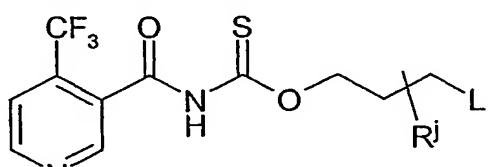
wherein X, W and R⁴ are as defined above, with a compound of formula (III) as defined above. The reaction is generally performed in the presence of an organic base such as a tertiary amine for example triethylamine, or pyridine, or an inorganic base such as an alkali metal carbonate, for example potassium carbonate, or an alkali metal alkoxide such as sodium ethoxide, or sodium hydride, in a solvent such as dioxan, tetrahydrofuran or N,N-dimethylformamide, at a temperature of from 0° to 100°C (preferably 0° to 50°C).

10

According to a further feature of the invention compounds of formula (I) wherein m is zero and N=Q is a formula (B) which is a heterocyclic ring of formula (B¹) or (B²), wherein the various symbols are as defined above, may be prepared by the cyclisation reaction of the corresponding compound of formula (XII) or (XIII):



(XII)



(XIII)

15

wherein L is a leaving group generally halogen and preferably chlorine or bromine, and the other symbols are as defined above. The reaction may be conducted according to the conditions used for the preparation of compounds of formula (I) wherein m is zero and N=Q is a formula (B) in which R¹ and R⁴ are as defined above, from a compound of formula (XI) and a compound of formula (III).

20

According to a further feature of the invention compounds of formula (I) wherein Q is as defined above, and m is 1 may be prepared by oxidising a corresponding compound in which m is 0. The oxidation is generally performed using hydrogen peroxide in a solvent such as acetic acid, or a peracid such as 3-chloroperbenzoic

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acid in a solvent such as dichloromethane or 1,2-dichloroethane, at a temperature of from 0°C to the reflux temperature of the solvent.

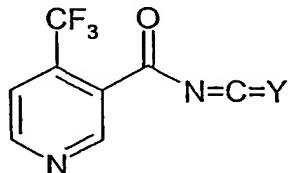
Compounds of formula (VII) may be prepared according to the above described 5 procedure for the preparation of compounds of formula (I) from compounds of formula (II) and (III).

Intermediates of formula (II) wherein Y is O, may be prepared by the reaction of a compound of formula (IV) above, with oxalyl chloride, in an inert solvent such as 10 dichloroethane at a temperature of from 0° to 60°C, to give the corresponding acylisocyanate intermediate which is generally not isolated, and which is directly reacted with an amine of formula (XIV):



wherein R² and R³ are as defined above. The reaction is generally performed in an 15 inert solvent such as dichloroethane or tetrahydrofuran at a temperature of from 0° to 60°C.

Intermediates of formula (II), (IX) and (X) wherein Y is O or S may be prepared by the reaction of a compound of formula (XV):



20

(XV)

wherein Y is O or S, with a corresponding compound of formula (XIV). The reaction is generally performed in an inert solvent such as dichloroethane or tetrahydrofuran at a temperature of from 0° to 60°C.

25

Intermediates of formula (VI) wherein L is chlorine, may be prepared according to known procedures, for example by the reaction of the corresponding carboxylic acid wherein L is replaced by OH, with a suitable halogenating agent, preferably oxalyl

chloride, in a solvent such as dichloroethane, optionally in the presence of N,N-dimethylformamide, at a temperature of from 0° to 60°C.

Intermediate of formula (XV) wherein Y is S, may be prepared according to known 5 procedures, for example by the reaction of a compound of formula (VI) as defined above, with an alkali metal thiocyanate or ammonium thiocyanate or tetraalkylammonium thiocyanate for example tetrabutylammonium thiocyanate, in the presence of a base such as an alkali metal carbonate for example potassium carbonate, at a temperature of from 0° to 60°C.

10 Intermediate of formula (XV) wherein Y is O, may be prepared according to known procedures, for example by the reaction of a compound of formula (VI) as defined above, with an alkali metal cyanate or ammonium cyanate or tetraalkylammonium cyanate for example tetrabutylammonium cyanate, in the presence of a base such 15 as an alkali metal carbonate for example potassium carbonate, at a temperature of from 0° to 60°C.

20 Intermediates of formula (XI), (XII) and (XIII) wherein Y is O or S may be prepared by the reaction of a compound of formula (XV) as defined above, with a corresponding compound of formula (XVI):



wherein W and R⁴ are as defined above. The reaction is generally performed in an inert solvent such as dichloroethane or tetrahydrofuran at a temperature of from 0° to 60°C.

25 Collections of compounds of the formula (I) which can be synthesized by the above mentioned process may also be prepared in a parallel manner, and this may be effected manually or in a semiautomated or fully automated manner. In this case, it is possible, for example, to automate the procedure of the reaction, work-up or 30 purification of the products or of the intermediates. In total, this is to be understood as meaning a procedure as is described, for example, by S.H. DeWitt in "Annual

Reports in Combinatorial Chemistry and Molecular Diversity: Automated Synthesis",
Volume 1, Verlag Escom 1997, pages 69 to 77.

A series of commercially available apparatuses as are offered by, for example, Stem
5 Corporation, Woodrolfe Road, Tollesbury, Essex, CM9 8SE, England or H+P
Labortechnik GmbH, Bruckmannring 28, 85764 Oberschleißheim, Germany or
Radleys, Shirehill, Saffron Walden, Essex, England, may be used for the parallel
procedure of the reaction and work-up. For the parallel purification of compounds of
the formula (I), or of intermediates obtained during the preparation, use may be
10 made, *inter alia*, of chromatography apparatuses, for example those by ISCO, Inc.,
4700 Superior Street, Lincoln, NE 68504, USA.

The apparatuses mentioned lead to a modular procedure in which the individual
process steps are automated, but manual operations must be performed between
15 the process steps. This can be prevented by employing semi-integrated or fully
integrated automation systems where the automation modules in question are
operated by, for example, robots. Such automation systems can be obtained, for
example, from Zymark Corporation, Zymark Center, Hopkinton, MA 01748, USA.

20 In addition to what has been described here, compounds of the formula (I) may be
prepared in part or fully by solid-phase-supported methods. For this purpose,
individual intermediate steps or all intermediate steps of the synthesis or of a
synthesis adapted to suit the procedure in question are bound to a synthetic resin.
Solid-phase-supported synthesis methods are described extensively in the specialist
25 literature, for example Barry A. Bunin in "The Combinatorial Index", Academic Press,
1998.

The use of solid-phase-supported synthesis methods permits a series of protocols
which are known from the literature and which, in turn, can be performed manually or
in an automated manner. For example, the "tea-bag method" (Houghten, US
30 4,631,211; Houghten et al., Proc. Natl. Acad. Sci, 1985, 82, 5131-5135), in which
products by IRORI, 11149 North Torrey Pines Road, La Jolla, CA 92037, USA, are
employed, may be semiautomated. The automation of solid-phase-supported parallel

syntheses is performed successfully, for example, by apparatuses by Argonaut Technologies, Inc., 887 Industrial Road, San Carlos, CA 94070, USA or MultiSynTech GmbH, Wullener Feld 4, 58454 Witten, Germany.

- 5 The preparation of the processes described herein yields compounds of the formula (I) in the form of substance collections which are termed libraries. The present invention also relates to libraries which comprise at least two compounds of the formula (I).
- 10 Compounds of formula (III), (IV), (V), (VI), (VIII), (XIV), (XVI), (A^{1a}), (A^{2a}), (A^{3a}) and (A^{4a}) are known or may be prepared by known methods.

The following non-limiting Examples illustrate the preparation of the compounds of formula (I).

15 Chemical Examples

NMR spectra were run in deuterochloroform unless stated otherwise. In the Examples which follow, quantities (also percentages) are weight-based, unless stated otherwise.

20

Example 1

Sodium hydride (0.09g, 60% dispersion in mineral oil) was added to a solution of 4-trifluoromethyl-3-pyridinecarboxamide (0.40g) in N,N-dimethylformamide at 20°C and stirred for an hour. Benzyl isothiocyanate (0.31 ml) was added to the mixture and 25 stirred at 20°C for 2 hours, then allyl bromide (0.30 ml) added with stirring at 20°C for 5 hours. Ethyl acetate and water were added and the organic phase dried (magnesium sulfate), evaporated and purified by column chromatography on silica gel eluting with n-hexane/ethyl acetate (3:1) to give 1-benzyl-S-(2-propenyl)-3-(4-trifluoromethyl-3-pyridylcarbonyl)isothiourea (0.55g, Compound A-724).

30

Example 2

Sodium hydride (0.03g, 60% dispersion in mineral oil) was added to a solution of 1-methyl-1-phenyl-3-(4-trifluoromethyl-3-pyridylcarbonyl)thiourea (0.2g) in tetrahydrofuran, and stirred at 20°C for 1 hour. Allyl bromide (0.31 ml) was added and stirred at 20°C for 2 hours, then a further amount of allyl bromide (0.09 ml) 5 added and stirred for 2 hours. Ethyl acetate and water were added, the organic phase dried (magnesium sulfate), evaporated and the residue purified by column chromatography on silica gel, eluting with n-hexane/ethyl acetate (3:1) to give 1-methyl-1-phenyl-S-(2-propenyl)-3-(4-trifluoromethyl-3-pyridylcarbonyl)isothiourea (0.17g, Compound A-1325).

10

Example 3

Sodium hydride (0.09g, 60% dispersion in mineral oil) was added to a solution of 4-trifluoromethyl-3-pyridinecarboxamide (0.40g) in N,N-dimethylformamide at 20°C, and stirred for an hour. Benzyl isothiocyanate (0.31 ml) was added to the mixture 15 and stirred at 20°C for 2 hours, then methyl bromoacetate (0.30ml) added and stirred at 20°C for 5 hours. Ethyl acetate and water were added, the organic phase dried (magnesium sulfate), evaporated and the residue purified by silica gel column chromatography eluting with n-hexane/ethyl acetate (3:1) to give 3-benzyl-2-(4-trifluoromethyl-3-pyridylcarbonyl)imino-4-thiazolidone (0.50g, Compound D-143):

20

Example 4

Sodium hydride (0.09g, 60% dispersion in mineral oil) was added portionwise to a solution of 4-trifluoromethyl-3-pyridinecarboxamide (0.40g) in N,N-dimethylformamide at 20°C, and stirred for 1 hour. Benzyl isothiocyanate (0.31 ml) 25 was added and stirred at 20°C for 1 hour, then 1,2-dibromoethane (0.30ml) added and stirred at 20°C for 1 hour. Sodium hydride (0.09g, 60% dispersion in mineral oil) was added in portions to the solution then stirred for 5 hours. Ethyl acetate and water were added, the organic phase dried (magnesium sulfate), evaporated and the residue purified by silica gel column chromatography eluting with n-hexane/ethyl 30 acetate (3:1) to give 3-benzyl-2-(4-trifluoromethyl-3-pyridylcarbonyl)iminothiazolidine (0.50g, Compound D-40).

Example 5

Methanesulfonyl chloride (0.14ml) was added to an ice-cooled solution of 1-(2-hydroxyethyl)-1-phenyl-3-(4-trifluoromethyl-3-pyridylcarbonyl)thiourea (0.60g) and triethylamine (0.42ml) in dichloromethane, and stirred for 3 hours at 20°C. The 5 mixture was washed (water), dried (magnesium sulfate), evaporated and the residue recrystallized (ethanol) to give 3-phenyl-2-(4-trifluoromethyl-3-pyridylcarbonyl)iminothiazolidine (0.26g, Compound D-60).

Example 6

Oxalyl chloride (0.6ml) was added to a suspension of 4-trifluoromethylnicotinic acid 10 (1g) and a catalytic amount of N,N-dimethylformamide in dichloromethane, and stirred at 20°C for 1 hour. 4-Benzyl-5-imino-1,3,4-thiadiazoline hydrobromide (1.44g) was added under ice cooling, and was stirred at 20°C for 1 hour. The mixture was then washed (water), dried (magnesium sulfate), evaporated and the residue recrystallized (ethanol) to give 4-benzyl-5-(4-trifluoromethyl-3-pyridylcarbonyl)imino-15 1,3,4-thiadiazoline (0.3g, Compound E-39).

Example 7

Methanesulfonyl chloride (0.12ml) was added to an ice-cooled solution of 1-(2-hydroxymethylphenyl)-3-(4-trifluoromethyl-3-pyridylcarbonyl)thiourea (0.50g) and 20 triethylamine (0.24ml) in dichloromethane, and stirred for 3 hours at 20°C. The reaction mixture was washed (water), dried (magnesium sulfate), evaporated and the residue recrystallized (ethanol) to give 2-(4-trifluoromethyl-3-pyridylcarbonyl)imino-4,5-benzo-1,3-thiazine (0.1g, Compound G-1).

25 The following Reference Example illustrates the preparation of intermediates used in the synthesis of the above Examples.

Reference Example 1

Oxalyl chloride (3.2 ml, 2M) was added to a suspension 4-trifluoromethylnicotinic 30 acid (1g) and a catalytic amount of N, N-dimethylformamide in dichloromethane, and stirred at 20°C for 1 hour. The mixture was evaporated, the residue dissolved in toluene and tetrabutylammonium thiocyanate (1g) and potassium carbonate (0.5g)

added, then stirred at 20°C for 30 minutes to give 4-trifluoromethyl-3-pyridylcarbonyl isothiocyanate. 2-Anilinoethanol (1.86g) was then added, and the mixture stirred at 20°C for 1 hour. Ethyl acetate was added and the mixture washed with water, hydrochloric acid 1(M), saturated sodium bicarbonate and brine, dried (magnesium sulfate), evaporated and recrystallised from ethanol to give 1-(2'-hydroxyethyl)-1-phenyl-3-(4-trifluoromethyl-3-pyridylcarbonyl)thiourea (0.9g); NMR 3.95(2H, t), 4.38(2H, m), 7.3-7.6(6H, m), 8.50(1H, brs), 8.80(1H, d).

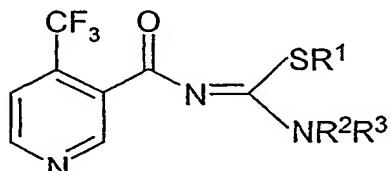
5 By proceeding in a similar manner the following intermediates were also prepared:
 1-methyl-1-phenyl-3-(4-trifluoromethyl-3-pyridylcarbonyl)thiourea, NMR 3.69(1H, s),
 10 7.3-7.6(6H, m), 8.33(1H, brs), 8.51(1H, s), 8.79(1H, d); and
 1-(2-hydroxymethylphenyl)-3-(4-trifluoromethyl-3-pyridylcarbonyl)thiourea, NMR
 4.71(2H, s), 7.2-7.4(2H, m), 7.5-7.6(1H, m), 7.8-7.9(2H, m), 9.01(1H, d), 9.11(1H, s),
 15 11.01(1H, brs), 12.13(1H, brs).

15 The following preferred compounds shown in Tables 1 to 9 also form part of the present invention, and were or may be prepared in accordance with, or analogously to, the above-mentioned Examples 1 to 7 or the above-described general methods. In the Tables Ph means phenyl and Me means methyl. Where subscripts are omitted after atoms it will be understood that they are intended, for example CH3 means
 20 CH3.

Compound numbers are given for reference purposes only.

Table I

Compounds of formula (Ia):



(Ia)

25

Compound	R ¹	R ²	R ³
A-1	CH3	CH3	H
A-2	C2H5	CH3	H
A-3	n-C3H7	CH3	H

Compound	R ¹	R ²	R ³
A-4	i-C ₃ H ₇	CH ₃	H
A-5	n-C ₄ H ₉	CH ₃	H
A-6	s-C ₄ H ₉	CH ₃	H
A-7	i-C ₄ H ₉	CH ₃	H
A-8	t-C ₄ H ₉	CH ₃	H
A-9	n-C ₅ H ₁₁	CH ₃	H
A-10	n-C ₆ H ₁₃	CH ₃	H
A-11	CH ₂ CH=CH ₂	CH ₃	H
A-12	CH ₂ C(CH ₃)=CH ₂	CH ₃	H
A-13	CH ₂ C(CH ₃)=CHCH ₃	CH ₃	H
A-14	CH ₂ CH=C(CH ₃) ₂	CH ₃	H
A-15	CH ₂ CCl=CH ₂	CH ₃	H
A-16	CH ₂ CH=CCl ₂	CH ₃	H
A-17	CH ₂ CH=CHCF ₃	CH ₃	H
A-18	CH ₂ CH=CHPh	CH ₃	H
A-19	CH(CH ₃)CH=CH ₂	CH ₃	H
A-20	CH ₂ CCH	CH ₃	H
A-21	CH ₂ CCCH ₃	CH ₃	H
A-22	CH ₂ CF ₃	CH ₃	H
A-23	CH ₂ CH ₂ OCH ₃	CH ₃	H
A-24	CH ₂ CH ₂ OC ₂ H ₅	CH ₃	H
A-25	CH ₂ CH ₂ CH ₂ OCH ₃	CH ₃	H
A-26	CH ₂ CH ₂ CH ₂ OC ₂ H ₅	CH ₃	H
A-27	CH ₂ CH(OCH ₃) ₂	CH ₃	H
A-28	CH ₂ CN	CH ₃	H
A-29	CH ₂ (cyclo-C ₃ H ₅)	CH ₃	H
A-30	CH ₂ (cyclo-C ₅ H ₉)	CH ₃	H
A-31	CH ₂ (cyclo-C ₆ H ₁₁)	CH ₃	H
A-32	CH ₂ Ph	CH ₃	H
A-33	CH ₂ (2-Cl-Ph)	CH ₃	H
A-34	CH ₂ (3-Cl-Ph)	CH ₃	H
A-35	CH ₂ (4-Cl-Ph)	CH ₃	H
A-36	CH ₂ (2-CF ₃ -Ph)	CH ₃	H
A-37	CH ₂ (3-CF ₃ -Ph)	CH ₃	H
A-38	CH ₂ (4-CF ₃ -Ph)	CH ₃	H
A-39	CH ₂ (2-F-Ph)	CH ₃	H
A-40	CH ₂ (3-F-Ph)	CH ₃	H
A-41	CH ₂ (4-F-Ph)	CH ₃	H
A-42	CH ₂ (2-OMe-Ph)	CH ₃	H
A-43	CH ₂ (3-OMe-Ph)	CH ₃	H
A-44	CH ₂ (4-OMe-Ph)	CH ₃	H
A-45	CH(CH ₃)Ph	CH ₃	H
A-46	CH(CH ₃)(2-Cl-Ph)	CH ₃	H

Compound	R ¹	R ²	R ³
A-47	CH(CH ₃)(3-Cl-Ph)	CH ₃	H
A-48	CH(CH ₃)(4-Cl-Ph)	CH ₃	H
A-49	CH(CH ₃)(2-CF ₃ -Ph)	CH ₃	H
A-50	CH(CH ₃)(3-CF ₃ -Ph)	CH ₃	H
A-51	CH(CH ₃)(4-CF ₃ -Ph)	CH ₃	H
A-52	CH ₂ CH ₂ Ph	CH ₃	H
A-53	CH ₃	CH ₃	CH ₃
A-54	C ₂ H ₅	CH ₃	CH ₃
A-55	n-C ₃ H ₇	CH ₃	CH ₃
A-56	i-C ₃ H ₇	CH ₃	CH ₃
A-57	n-C ₄ H ₉	CH ₃	CH ₃
A-58	s-C ₄ H ₉	CH ₃	CH ₃
A-59	i-C ₄ H ₉	CH ₃	CH ₃
A-60	t-C ₄ H ₉	CH ₃	CH ₃
A-61	n-C ₅ H ₁₁	CH ₃	CH ₃
A-62	n-C ₆ H ₁₃	CH ₃	CH ₃
A-63	CH ₂ CH=CH ₂	CH ₃	CH ₃
A-64	CH ₂ C(CH ₃)=CH ₂	CH ₃	CH ₃
A-65	CH ₂ C(CH ₃)=CHCH ₃	CH ₃	CH ₃
A-66	CH ₂ CH=C(CH ₃) ₂	CH ₃	CH ₃
A-67	CH ₂ CCl=CH ₂	CH ₃	CH ₃
A-68	CH ₂ CH=CCl ₂	CH ₃	CH ₃
A-69	CH ₂ CH=CHCF ₃	CH ₃	CH ₃
A-70	CH ₂ CH=CHPh	CH ₃	CH ₃
A-71	CH(CH ₃)CH=CH ₂	CH ₃	CH ₃
A-72	CH ₂ CCH	CH ₃	CH ₃
A-73	CH ₂ CCCH ₃	CH ₃	CH ₃
A-74	CH ₂ CF ₃	CH ₃	CH ₃
A-75	CH ₂ CH ₂ OCH ₃	CH ₃	CH ₃
A-76	CH ₂ CH ₂ OC ₂ H ₅	CH ₃	CH ₃
A-77	CH ₂ CH ₂ CH ₂ OCH ₃	CH ₃	CH ₃
A-78	CH ₂ CH ₂ CH ₂ OC ₂ H ₅	CH ₃	CH ₃
A-79	CH ₂ CH(OCH ₃) ₂	CH ₃	CH ₃
A-80	CH ₂ CN	CH ₃	CH ₃
A-81	CH ₂ (cyclo-C ₃ H ₅)	CH ₃	CH ₃
A-82	CH ₂ (cyclo-C ₅ H ₉)	CH ₃	CH ₃
A-83	CH ₂ (cyclo-C ₆ H ₁₁)	CH ₃	CH ₃
A-84	CH ₂ CO ₂ CH ₃	CH ₃	CH ₃
A-85	CH ₂ CO ₂ C ₂ H ₅	CH ₃	CH ₃
A-86	CH(CH ₃)CO ₂ CH ₃	CH ₃	CH ₃
A-87	CH(CH ₃)CO ₂ C ₂ H ₅	CH ₃	CH ₃
A-88	C(CH ₃) ₂ CO ₂ CH ₃	CH ₃	CH ₃
A-89	CH ₂ Ph	CH ₃	CH ₃

Compound	R ¹	R ²	R ³
A-90	CH2(2-Cl-Ph)	CH3	CH3
A-91	CH2(3-Cl-Ph)	CH3	CH3
A-92	CH2(4-Cl-Ph)	CH3	CH3
A-93	CH2(2-CF ₃ -Ph)	CH3	CH3
A-94	CH2(3-CF ₃ -Ph)	CH3	CH3
A-95	CH2(4-CF ₃ -Ph)	CH3	CH3
A-96	CH2(2-F-Ph)	CH3	CH3
A-97	CH2(3-F-Ph)	CH3	CH3
A-98	CH2(4-F-Ph)	CH3	CH3
A-99	CH2(2-OMe-Ph)	CH3	CH3
A-100	CH2(3-OMe-Ph)	CH3	CH3
A-101	CH2(4-OMe-Ph)	CH3	CH3
A-102	CH(CH3)Ph	CH3	CH3
A-103	CH(CH3)(2-Cl-Ph)	CH3	CH3
A-104	CH(CH3)(3-Cl-Ph)	CH3	CH3
A-105	CH(CH3)(4-Cl-Ph)	CH3	CH3
A-106	CH(CH3)(2-CF ₃ -Ph)	CH3	CH3
A-107	CH(CH3)(3-CF ₃ -Ph)	CH3	CH3
A-108	CH(CH3)(4-CF ₃ -Ph)	CH3	CH3
A-109	CH ₂ CH ₂ Ph	CH3	CH3
A-110	CH ₃	C ₂ H ₅	H
A-111	C ₂ H ₅	C ₂ H ₅	H
A-112	n-C ₃ H ₇	C ₂ H ₅	H
A-113	i-C ₃ H ₇	C ₂ H ₅	H
A-114	n-C ₄ H ₉	C ₂ H ₅	H
A-115	s-C ₄ H ₉	C ₂ H ₅	H
A-116	i-C ₄ H ₉	C ₂ H ₅	H
A-117	t-C ₄ H ₉	C ₂ H ₅	H
A-118	n-C ₅ H ₁₁	C ₂ H ₅	H
A-119	n-C ₆ H ₁₃	C ₂ H ₅	H
A-120	CH ₂ CH=CH ₂	C ₂ H ₅	H
A-121	CH ₂ C(CH ₃)=CH ₂	C ₂ H ₅	H
A-122	CH ₂ C(CH ₃)=CHCH ₃	C ₂ H ₅	H
A-123	CH ₂ CH=C(CH ₃) ₂	C ₂ H ₅	H
A-124	CH ₂ CCl=CH ₂	C ₂ H ₅	H
A-125	CH ₂ CH=CCl ₂	C ₂ H ₅	H
A-126	CH ₂ CH=CHCF ₃	C ₂ H ₅	H
A-127	CH ₂ CH=CHPh	C ₂ H ₅	H
A-128	CH(CH ₃)CH=CH ₂	C ₂ H ₅	H
A-129	CH ₂ CCH	C ₂ H ₅	H
A-130	CH ₂ CCCH ₃	C ₂ H ₅	H
A-131	CH ₂ CF ₃	C ₂ H ₅	H
A-132	CH ₂ CH ₂ OCH ₃	C ₂ H ₅	H

Compound	R ¹	R ²	R ³
A-133	CH2CH2OC2H5	C2H5	H
A-134	CH2CH2CH2OCH3	C2H5	H
A-135	CH2CH2CH2OC2H5	C2H5	H
A-136	CH2CH(OCH3)2	C2H5	H
A-137	CH2CN	C2H5	H
A-138	CH2(cyclo-C3H5)	C2H5	H
A-139	CH2(cyclo-C5H9)	C2H5	H
A-140	CH2(cyclo-C6H11)	C2H5	H
A-141	CH2Ph	C2H5	H
A-142	CH2(2-Cl-Ph)	C2H5	H
A-143	CH2(3-Cl-Ph)	C2H5	H
A-144	CH2(4-Cl-Ph)	C2H5	H
A-145	CH2(2-CF3-Ph)	C2H5	H
A-146	CH2(3-CF3-Ph)	C2H5	H
A-147	CH2(4-CF3-Ph)	C2H5	H
A-148	CH2(2-F-Ph)	C2H5	H
A-149	CH2(3-F-Ph)	C2H5	H
A-150	CH2(4-F-Ph)	C2H5	H
A-151	CH2(2-OMe-Ph)	C2H5	H
A-152	CH2(3-OMe-Ph)	C2H5	H
A-153	CH2(4-OMe-Ph)	C2H5	H
A-154	CH(CH3)Ph	C2H5	H
A-155	CH(CH3)(2-Cl-Ph)	C2H5	H
A-156	CH(CH3)(3-Cl-Ph)	C2H5	H
A-157	CH(CH3)(4-Cl-Ph)	C2H5	H
A-158	CH(CH3)(2-CF3-Ph)	C2H5	H
A-159	CH(CH3)(3-CF3-Ph)	C2H5	H
A-160	CH(CH3)(4-CF3-Ph)	C2H5	H
A-161	CH2CH2Ph	C2H5	H
A-162	CH3	C2H5	C2H5
A-163	C2H5	C2H5	C2H5
A-164	n-C3H7	C2H5	C2H5
A-165	i-C3H7	C2H5	C2H5
A-166	n-C4H9	C2H5	C2H5
A-167	s-C4H9	C2H5	C2H5
A-168	i-C4H9	C2H5	C2H5
A-169	t-C4H9	C2H5	C2H5
A-170	n-C5H11	C2H5	C2H5
A-171	n-C6H13	C2H5	C2H5
A-172	CH2CH=CH2	C2H5	C2H5
A-173	CH2C(CH3)=CH2	C2H5	C2H5
A-174	CH2C(CH3)=CHCH3	C2H5	C2H5
A-175	CH2CH=C(CH3)2	C2H5	C2H5

Compound	R ¹	R ²	R ³
A-176	CH ₂ CCl=CH ₂	C ₂ H ₅	C ₂ H ₅
A-177	CH ₂ CH=CCl ₂	C ₂ H ₅	C ₂ H ₅
A-178	CH ₂ CH=CHCF ₃	C ₂ H ₅	C ₂ H ₅
A-179	CH ₂ CH=CHPh	C ₂ H ₅	C ₂ H ₅
A-180	CH(CH ₃)CH=CH ₂	C ₂ H ₅	C ₂ H ₅
A-181	CH ₂ CCH	C ₂ H ₅	C ₂ H ₅
A-182	CH ₂ CCCH ₃	C ₂ H ₅	C ₂ H ₅
A-183	CH ₂ CF ₃	C ₂ H ₅	C ₂ H ₅
A-184	CH ₂ CH ₂ OCH ₃	C ₂ H ₅	C ₂ H ₅
A-185	CH ₂ CH ₂ OC ₂ H ₅	C ₂ H ₅	C ₂ H ₅
A-186	CH ₂ CH ₂ CH ₂ OCH ₃	C ₂ H ₅	C ₂ H ₅
A-187	CH ₂ CH ₂ CH ₂ OC ₂ H ₅	C ₂ H ₅	C ₂ H ₅
A-188	CH ₂ CH(OCH ₃) ₂	C ₂ H ₅	C ₂ H ₅
A-189	CH ₂ CN	C ₂ H ₅	C ₂ H ₅
A-190	CH ₂ (cyclo-C ₃ H ₅)	C ₂ H ₅	C ₂ H ₅
A-191	CH ₂ (cyclo-C ₅ H ₉)	C ₂ H ₅	C ₂ H ₅
A-192	CH ₂ (cyclo-C ₆ H ₁₁)	C ₂ H ₅	C ₂ H ₅
A-193	CH ₂ CO ₂ CH ₃	C ₂ H ₅	C ₂ H ₅
A-194	CH ₂ CO ₂ C ₂ H ₅	C ₂ H ₅	C ₂ H ₅
A-195	CH(CH ₃)CO ₂ CH ₃	C ₂ H ₅	C ₂ H ₅
A-196	CH(CH ₃)CO ₂ C ₂ H ₅	C ₂ H ₅	C ₂ H ₅
A-197	C(CH ₃) ₂ CO ₂ CH ₃	C ₂ H ₅	C ₂ H ₅
A-198	CH ₂ Ph	C ₂ H ₅	C ₂ H ₅
A-199	CH ₂ (2-Cl-Ph)	C ₂ H ₅	C ₂ H ₅
A-200	CH ₂ (3-Cl-Ph)	C ₂ H ₅	C ₂ H ₅
A-201	CH ₂ (4-Cl-Ph)	C ₂ H ₅	C ₂ H ₅
A-202	CH ₂ (2-CF ₃ -Ph)	C ₂ H ₅	C ₂ H ₅
A-203	CH ₂ (3-CF ₃ -Ph)	C ₂ H ₅	C ₂ H ₅
A-204	CH ₂ (4-CF ₃ -Ph)	C ₂ H ₅	C ₂ H ₅
A-205	CH ₂ (2-F-Ph)	C ₂ H ₅	C ₂ H ₅
A-206	CH ₂ (3-F-Ph)	C ₂ H ₅	C ₂ H ₅
A-207	CH ₂ (4-F-Ph)	C ₂ H ₅	C ₂ H ₅
A-208	CH ₂ (2-OMe-Ph)	C ₂ H ₅	C ₂ H ₅
A-209	CH ₂ (3-OMe-Ph)	C ₂ H ₅	C ₂ H ₅
A-210	CH ₂ (4-OMe-Ph)	C ₂ H ₅	C ₂ H ₅
A-211	CH(CH ₃)Ph	C ₂ H ₅	C ₂ H ₅
A-212	CH(CH ₃)(2-Cl-Ph)	C ₂ H ₅	C ₂ H ₅
A-213	CH(CH ₃)(3-Cl-Ph)	C ₂ H ₅	C ₂ H ₅
A-214	CH(CH ₃)(4-Cl-Ph)	C ₂ H ₅	C ₂ H ₅
A-215	CH(CH ₃)(2-CF ₃ -Ph)	C ₂ H ₅	C ₂ H ₅
A-216	CH(CH ₃)(3-CF ₃ -Ph)	C ₂ H ₅	C ₂ H ₅
A-217	CH(CH ₃)(4-CF ₃ -Ph)	C ₂ H ₅	C ₂ H ₅
A-218	CH ₂ CH ₂ Ph	C ₂ H ₅	C ₂ H ₅

Compound	R ¹	R ²	R ³
A-219	CH ₃	i-C ₃ H ₇	H
A-220	C ₂ H ₅	i-C ₃ H ₇	H
A-221	n-C ₃ H ₇	i-C ₃ H ₇	H
A-222	i-C ₃ H ₇	i-C ₃ H ₇	H
A-223	n-C ₄ H ₉	i-C ₃ H ₇	H
A-224	s-C ₄ H ₉	i-C ₃ H ₇	H
A-225	i-C ₄ H ₉	i-C ₃ H ₇	H
A-226	t-C ₄ H ₉	i-C ₃ H ₇	H
A-227	n-C ₅ H ₁₁	i-C ₃ H ₇	H
A-228	n-C ₆ H ₁₃	i-C ₃ H ₇	H
A-229	CH ₂ CH=CH ₂	i-C ₃ H ₇	H
A-230	CH ₂ C(CH ₃)=CH ₂	i-C ₃ H ₇	H
A-231	CH ₂ CH=CHCH ₃	i-C ₃ H ₇	H
A-232	CH ₂ CH=C(CH ₃) ₂	i-C ₃ H ₇	H
A-233	CH ₂ CCl=CH ₂	i-C ₃ H ₇	H
A-234	CH ₂ CH=CCl ₂	i-C ₃ H ₇	H
A-235	CH ₂ CH=CHCF ₃	i-C ₃ H ₇	H
A-236	CH ₂ CH=CHPh	i-C ₃ H ₇	H
A-237	CH(CH ₃)CH=CH ₂	i-C ₃ H ₇	H
A-238	CH ₂ CCH	i-C ₃ H ₇	H
A-239	CH ₂ CCCH ₃	i-C ₃ H ₇	H
A-240	CH ₂ CF ₃	i-C ₃ H ₇	H
A-241	CH ₂ CH ₂ OCH ₃	i-C ₃ H ₇	H
A-242	CH ₂ CH ₂ OCH ₂ H ₅	i-C ₃ H ₇	H
A-243	CH ₂ CH ₂ CH ₂ OCH ₃	i-C ₃ H ₇	H
A-244	CH ₂ CH ₂ CH ₂ OCH ₂ H ₅	i-C ₃ H ₇	H
A-245	CH ₂ CH(OCH ₃) ₂	i-C ₃ H ₇	H
A-246	CH ₂ CN	i-C ₃ H ₇	H
A-247	CH ₂ (cyclo-C ₃ H ₅)	i-C ₃ H ₇	H
A-248	CH ₂ (cyclo-C ₅ H ₉)	i-C ₃ H ₇	H
A-249	CH ₂ (cyclo-C ₆ H ₁₁)	i-C ₃ H ₇	H
A-250	CH ₂ Ph	i-C ₃ H ₇	H
A-251	CH ₂ (2-Cl-Ph)	i-C ₃ H ₇	H
A-252	CH ₂ (3-Cl-Ph)	i-C ₃ H ₇	H
A-253	CH ₂ (4-Cl-Ph)	i-C ₃ H ₇	H
A-254	CH ₂ (2-CF ₃ -Ph)	i-C ₃ H ₇	H
A-255	CH ₂ (3-CF ₃ -Ph)	i-C ₃ H ₇	H
A-256	CH ₂ (4-CF ₃ -Ph)	i-C ₃ H ₇	H
A-257	CH ₂ (2-F-Ph)	i-C ₃ H ₇	H
A-258	CH ₂ (3-F-Ph)	i-C ₃ H ₇	H
A-259	CH ₂ (4-F-Ph)	i-C ₃ H ₇	H
A-260	CH ₂ (2-OMe-Ph)	i-C ₃ H ₇	H
A-261	CH ₂ (3-OMe-Ph)	i-C ₃ H ₇	H

Compound	R ¹	R ²	R ³
A-262	CH2(4-OMe-Ph)	i-C3H7	H
A-263	CH(CH3)Ph	i-C3H7	H
A-264	CH(CH3)(2-Cl-Ph)	i-C3H7	H
A-265	CH(CH3)(3-Cl-Ph)	i-C3H7	H
A-266	CH(CH3)(4-Cl-Ph)	i-C3H7	H
A-267	CH(CH3)(2-CF ₃ -Ph)	i-C3H7	H
A-268	CH(CH3)(3-CF ₃ -Ph)	i-C3H7	H
A-269	CH(CH3)(4-CF ₃ -Ph)	i-C3H7	H
A-270	CH ₂ CH ₂ Ph	i-C3H7	H
A-271	CH ₃	n-C3H7	H
A-272	C ₂ H ₅	n-C3H7	H
A-273	n-C3H7	n-C3H7	H
A-274	i-C3H7	n-C3H7	H
A-275	n-C4H ₉	n-C3H7	H
A-276	s-C4H ₉	n-C3H7	H
A-277	i-C4H ₉	n-C3H7	H
A-278	t-C4H ₉	n-C3H7	H
A-279	n-C ₅ H ₁₁	n-C3H7	H
A-280	n-C ₆ H ₁₃	n-C3H7	H
A-281	CH ₂ CH=CH ₂	n-C3H7	H
A-282	CH ₂ C(CH ₃)=CH ₂	n-C3H7	H
A-283	CH ₂ CH=CHCH ₃	n-C3H7	H
A-284	CH ₂ CH=C(CH ₃) ₂	n-C3H7	H
A-285	CH ₂ CCl=CH ₂	n-C3H7	H
A-286	CH ₂ CH=CCl ₂	n-C3H7	H
A-287	CH ₂ GH=CHCF ₃	n-C3H7	H
A-288	CH ₂ CH=CHPh	n-C3H7	H
A-289	CH(CH ₃)CH=CH ₂	n-C3H7	H
A-290	CH ₂ CCH	n-C3H7	H
A-291	CH ₂ CCCH ₃	n-C3H7	H
A-292	CH ₂ CF ₃	n-C3H7	H
A-293	CH ₂ CH ₂ OCH ₃	n-C3H7	H
A-294	CH ₂ CH ₂ OC ₂ H ₅	n-C3H7	H
A-295	CH ₂ CH ₂ CH ₂ OCH ₃	n-C3H7	H
A-296	CH ₂ CH ₂ CH ₂ OC ₂ H ₅	n-C3H7	H
A-297	CH ₂ CH(OCH ₃) ₂	n-C3H7	H
A-298	CH ₂ CN	n-C3H7	H
A-299	CH ₂ (cyclo-C ₃ H ₅)	n-C3H7	H
A-300	CH ₂ (cyclo-C ₅ H ₉)	n-C3H7	H
A-301	CH ₂ (cyclo-C ₆ H ₁₁)	n-C3H7	H
A-302	CH ₂ Ph	n-C3H7	H
A-303	CH ₂ (2-Cl-Ph)	n-C3H7	H
A-304	CH ₂ (3-Cl-Ph)	n-C3H7	H

Compound	R ¹	R ²	R ³
A-305	CH2(4-Cl-Ph)	n-C3H7	H
A-306	CH2(2-CF3-Ph)	n-C3H7	H
A-307	CH2(3-CF3-Ph)	n-C3H7	H
A-308	CH2(4-CF3-Ph)	n-C3H7	H
A-309	CH2(2-F-Ph)	n-C3H7	H
A-310	CH2(3-F-Ph)	n-C3H7	H
A-311	CH2(4-F-Ph)	n-C3H7	H
A-312	CH2(2-OMe-Ph)	n-C3H7	H
A-313	CH2(3-OMe-Ph)	n-C3H7	H
A-314	CH2(4-OMe-Ph)	n-C3H7	H
A-315	CH(CH3)Ph	n-C3H7	H
A-316	CH(CH3)(2-Cl-Ph)	n-C3H7	H
A-317	CH(CH3)(3-Cl-Ph)	n-C3H7	H
A-318	CH(CH3)(4-Cl-Ph)	n-C3H7	H
A-319	CH(CH3)(2-CF3-Ph)	n-C3H7	H
A-320	CH(CH3)(3-CF3-Ph)	n-C3H7	H
A-321	CH(CH3)(4-CF3-Ph)	n-C3H7	H
A-322	CH2CH2Ph	n-C3H7	H
A-323	CH3	n-C4H9	H
A-324	C2H5	n-C4H9	H
A-325	n-C3H7	n-C4H9	H
A-326	i-C3H7	n-C4H9	H
A-327	n-C4H9	n-C4H9	H
A-328	s-C4H9	n-C4H9	H
A-329	i-C4H9	n-C4H9	H
A-330	t-C4H9	n-C4H9	H
A-331	n-C5H11	n-C4H9	H
A-332	n-C6H13	n-C4H9	H
A-333	CH2CH=CH2	n-C4H9	H
A-334	CH2C(CH3)=CH2	n-C4H9	H
A-335	CH2C(CH3)=CHCH3	n-C4H9	H
A-336	CH2CH=C(CH3)2	n-C4H9	H
A-337	CH2CCl=CH2	n-C4H9	H
A-338	CH2CH=CCl2	n-C4H9	H
A-339	CH2CH=CHCF3	n-C4H9	H
A-340	CH2CH=CHPh	n-C4H9	H
A-341	CH(CH3)CH=CH2	n-C4H9	H
A-342	CH2CCH	n-C4H9	H
A-343	CH2CCCH3	n-C4H9	H
A-344	CH2CF3	n-C4H9	H
A-345	CH2CH2OCH3	n-C4H9	H
A-346	CH2CH2OC2H5	n-C4H9	H
A-347	CH2CH2CH2OCH3	n-C4H9	H

Compound	R ¹	R ²	R ³
A-348	CH2CH2CH2OC2H5	n-C4H9	H
A-349	CH2CH(OCH3)2	n-C4H9	H
A-350	CH2CN	n-C4H9	H
A-351	CH2(cyclo-C3H5)	n-C4H9	H
A-352	CH2(cyclo-C5H9)	n-C4H9	H
A-353	CH2(cyclo-C6H11)	n-C4H9	H
A-354	CH2Ph	n-C4H9	H
A-355	CH2(2-Cl-Ph)	n-C4H9	H
A-356	CH2(3-Cl-Ph)	n-C4H9	H
A-357	CH2(4-Cl-Ph)	n-C4H9	H
A-358	CH2(2-CF3-Ph)	n-C4H9	H
A-359	CH2(3-CF3-Ph)	n-C4H9	H
A-360	CH2(4-CF3-Ph)	n-C4H9	H
A-361	CH2(2-F-Ph)	n-C4H9	H
A-362	CH2(3-F-Ph)	n-C4H9	H
A-363	CH2(4-F-Ph)	n-C4H9	H
A-364	CH2(2-OMe-Ph)	n-C4H9	H
A-365	CH2(3-OMe-Ph)	n-C4H9	H
A-366	CH2(4-OMe-Ph)	n-C4H9	H
A-367	CH(CH3)Ph	n-C4H9	H
A-368	CH(CH3)(2-Cl-Ph)	n-C4H9	H
A-369	CH(CH3)(3-Cl-Ph)	n-C4H9	H
A-370	CH(CH3)(4-Cl-Ph)	n-C4H9	H
A-371	CH(CH3)(2-CF3-Ph)	n-C4H9	H
A-372	CH(CH3)(3-CF3-Ph)	n-C4H9	H
A-373	CH(CH3)(4-CF3-Ph)	n-C4H9	H
A-374	CH2CH2Ph	n-C4H9	H
A-375	CH3	s-C4H9	H
A-376	C2H5	s-C4H9	H
A-377	n-C3H7	s-C4H9	H
A-378	i-C3H7	s-C4H9	H
A-379	n-C4H9	s-C4H9	H
A-380	s-C4H9	s-C4H9	H
A-381	i-C4H9	s-C4H9	H
A-382	t-C4H9	s-C4H9	H
A-383	n-C5H11	s-C4H9	H
A-384	n-C6H13	s-C4H9	H
A-385	CH2CH=CH2	s-C4H9	H
A-386	CH2C(CH3)=CH2	s-C4H9	H
A-387	CH2CH=CHCH3	s-C4H9	H
A-388	CH2CH=C(CH3)2	s-C4H9	H
A-389	CH2CCl=CH2	s-C4H9	H
A-390	CH2CH=CCl2	s-C4H9	H

Compound	R ¹	R ²	R ³
A-391	CH2CH=CHCF3	s-C4H9	H
A-392	CH2CH=CHPh	s-C4H9	H
A-393	CH(CH3)CH=CH2	s-C4H9	H
A-394	CH2CCH	s-C4H9	H
A-395	CH2CCCH3	s-C4H9	H
A-396	CH2CF3	s-C4H9	H
A-397	CH2CH2OCH3	s-C4H9	H
A-398	CH2CH2OC2H5	s-C4H9	H
A-399	CH2CH2CH2OCH3	s-C4H9	H
A-400	CH2CH2CH2OC2H5	s-C4H9	H
A-401	CH2CH(OCH3)2	s-C4H9	H
A-402	CH2CN	s-C4H9	H
A-403	CH2(cyclo-C3H5)	s-C4H9	H
A-404	CH2(cyclo-C5H9)	s-C4H9	H
A-405	CH2(cyclo-C6H11)	s-C4H9	H
A-406	CH2Ph	s-C4H9	H
A-407	CH2(2-Cl-Ph)	s-C4H9	H
A-408	CH2(3-Cl-Ph)	s-C4H9	H
A-409	CH2(4-Cl-Ph)	s-C4H9	H
A-410	CH2(2-CF3-Ph)	s-C4H9	H
A-411	CH2(3-CF3-Ph)	s-C4H9	H
A-412	CH2(4-CF3-Ph)	s-C4H9	H
A-413	CH2(2-F-Ph)	s-C4H9	H
A-414	CH2(3-F-Ph)	s-C4H9	H
A-415	CH2(4-F-Ph)	s-C4H9	H
A-416	CH2(2-OMe-Ph)	s-C4H9	H
A-417	CH2(3-OMe-Ph)	s-C4H9	H
A-418	CH2(4-OMe-Ph)	s-C4H9	H
A-419	CH(CH3)Ph	s-C4H9	H
A-420	CH(CH3)(2-Cl-Ph)	s-C4H9	H
A-421	CH(CH3)(3-Cl-Ph)	s-C4H9	H
A-422	CH(CH3)(4-Cl-Ph)	s-C4H9	H
A-423	CH(CH3)(2-CF3-Ph)	s-C4H9	H
A-424	CH(CH3)(3-CF3-Ph)	s-C4H9	H
A-425	CH(CH3)(4-CF3-Ph)	s-C4H9	H
A-426	CH2CH2Ph	s-C4H9	H
A-427	CH3	i-C4H9	H
A-428	C2H5	i-C4H9	H
A-429	n-C3H7	i-C4H9	H
A-430	i-C3H7	i-C4H9	H
A-431	n-C4H9	i-C4H9	H
A-432	s-C4H9	i-C4H9	H
A-433	i-C4H9	i-C4H9	H

Compound	R ¹	R ²	R ³
A-434	t-C4H9	i-C4H9	H
A-435	n-C5H11	i-C4H9	H
A-436	n-C6H13	i-C4H9	H
A-437	CH2CH=CH2	i-C4H9	H
A-438	CH2C(CH3)=CH2	i-C4H9	H
A-439	CH2CH=CHCH3	i-C4H9	H
A-440	CH2CH=C(CH3)2	i-C4H9	H
A-441	CH2CCl=CH2	i-C4H9	H
A-442	CH2CH=CCl2	i-C4H9	H
A-443	CH2CH=CHCF3	i-C4H9	H
A-444	CH2CH=CHPh	i-C4H9	H
A-445	CH(CH3)CH=CH2	i-C4H9	H
A-446	CH2CCH	i-C4H9	H
A-447	CH2CCCH3	i-C4H9	H
A-448	CH2CF3	i-C4H9	H
A-449	CH2CH2OCH3	i-C4H9	H
A-450	CH2CH2OC2H5	i-C4H9	H
A-451	CH2CH2CH2OCH3	i-C4H9	H
A-452	CH2CH2CH2OC2H5	i-C4H9	H
A-453	CH2CH(OCH3)2	i-C4H9	H
A-454	CH2CN	i-C4H9	H
A-455	CH2(cyclo-C3H5)	i-C4H9	H
A-456	CH2(cyclo-C5H9)	i-C4H9	H
A-457	CH2(cyclo-C6H11)	i-C4H9	H
A-458	CH2Ph	i-C4H9	H
A-459	CH2(2-Cl-Ph)	i-C4H9	H
A-460	CH2(3-Cl-Ph)	i-C4H9	H
A-461	CH2(4-Cl-Ph)	i-C4H9	H
A-462	CH2(2-CF3-Ph)	i-C4H9	H
A-463	CH2(3-CF3-Ph)	i-C4H9	H
A-464	CH2(4-CF3-Ph)	i-C4H9	H
A-465	CH2(2-F-Ph)	i-C4H9	H
A-466	CH2(3-F-Ph)	i-C4H9	H
A-467	CH2(4-F-Ph)	i-C4H9	H
A-468	CH2(2-OMe-Ph)	i-C4H9	H
A-469	CH2(3-OMe-Ph)	i-C4H9	H
A-470	CH2(4-OMe-Ph)	i-C4H9	H
A-471	CH(CH3)Ph	i-C4H9	H
A-472	CH(CH3)(2-Cl-Ph)	i-C4H9	H
A-473	CH(CH3)(3-Cl-Ph)	i-C4H9	H
A-474	CH(CH3)(4-Cl-Ph)	i-C4H9	H
A-475	CH(CH3)(2-CF3-Ph)	i-C4H9	H
A-476	CH(CH3)(3-CF3-Ph)	i-C4H9	H

Compound	R ¹	R ²	R ³
A-477	CH(CH ₃)(4-CF ₃ -Ph)	i-C ₄ H ₉	H
A-478	CH ₂ CH ₂ Ph	i-C ₄ H ₉	H
A-479	CH ₃	t-C ₄ H ₉	H
A-480	C ₂ H ₅	t-C ₄ H ₉	H
A-481	n-C ₃ H ₇	t-C ₄ H ₉	H
A-482	i-C ₃ H ₇	t-C ₄ H ₉	H
A-483	n-C ₄ H ₉	t-C ₄ H ₉	H
A-484	s-C ₄ H ₉	t-C ₄ H ₉	H
A-485	i-C ₄ H ₉	t-C ₄ H ₉	H
A-486	t-C ₄ H ₉	t-C ₄ H ₉	H
A-487	n-C ₅ H ₁₁	t-C ₄ H ₉	H
A-488	n-C ₆ H ₁₃	t-C ₄ H ₉	H
A-489	CH ₂ CH=CH ₂	t-C ₄ H ₉	H
A-490	CH ₂ C(CH ₃)=CH ₂	t-C ₄ H ₉	H
A-491	CH ₂ CH=CHCH ₃	t-C ₄ H ₉	H
A-492	CH ₂ CH=C(CH ₃) ₂	t-C ₄ H ₉	H
A-493	CH ₂ CCl=CH ₂	t-C ₄ H ₉	H
A-494	CH ₂ CH=CCl ₂	t-C ₄ H ₉	H
A-495	CH ₂ CH=CHCF ₃	t-C ₄ H ₉	H
A-496	CH ₂ CH=CHPh	t-C ₄ H ₉	H
A-497	CH(CH ₃)CH=CH ₂	t-C ₄ H ₉	H
A-498	CH ₂ CCH	t-C ₄ H ₉	H
A-499	CH ₂ CCCH ₃	t-C ₄ H ₉	H
A-500	CH ₂ CF ₃	t-C ₄ H ₉	H
A-501	CH ₂ CH ₂ OCH ₃	t-C ₄ H ₉	H
A-502	CH ₂ CH ₂ OC ₂ H ₅	t-C ₄ H ₉	H
A-503	CH ₂ CH ₂ CH ₂ OCH ₃	t-C ₄ H ₉	H
A-504	CH ₂ CO ₂ CH ₃	t-C ₄ H ₉	H
A-505	CH ₂ CH(OCH ₃) ₂	t-C ₄ H ₉	H
A-506	CH ₂ CN	t-C ₄ H ₉	H
A-507	CH ₂ (cyclo-C ₃ H ₅)	t-C ₄ H ₉	H
A-508	CH ₂ (cyclo-C ₅ H ₉)	t-C ₄ H ₉	H
A-509	CH ₂ (cyclo-C ₆ H ₁₁)	t-C ₄ H ₉	H
A-510	CH ₂ Ph	t-C ₄ H ₉	H
A-511	CH ₂ (2-Cl-Ph)	t-C ₄ H ₉	H
A-512	CH ₂ (3-Cl-Ph)	t-C ₄ H ₉	H
A-513	CH ₂ (4-Cl-Ph)	t-C ₄ H ₉	H
A-514	CH ₂ (2-CF ₃ -Ph)	t-C ₄ H ₉	H
A-515	CH ₂ (3-CF ₃ -Ph)	t-C ₄ H ₉	H
A-516	CH ₂ (4-CF ₃ -Ph)	t-C ₄ H ₉	H
A-517	CH ₂ (2-F-Ph)	t-C ₄ H ₉	H
A-518	CH ₂ (3-F-Ph)	t-C ₄ H ₉	H
A-519	CH ₂ (4-F-Ph)	t-C ₄ H ₉	H

Compound	R ¹	R ²	R ³
A-520	CH2(2-OMe-Ph)	t-C4H9	H
A-521	CH2(3-OMe-Ph)	t-C4H9	H
A-522	CH2(4-OMe-Ph)	t-C4H9	H
A-523	CH(CH3)Ph	t-C4H9	H
A-524	CH(CH3)(2-Cl-Ph)	t-C4H9	H
A-525	CH(CH3)(3-Cl-Ph)	t-C4H9	H
A-526	CH(CH3)(4-Cl-Ph)	t-C4H9	H
A-527	CH(CH3)(2-CF3-Ph)	t-C4H9	H
A-528	CH(CH3)(3-CF3-Ph)	t-C4H9	H
A-529	CH(CH3)(4-CF3-Ph)	t-C4H9	H
A-530	CH2CH2Ph	t-C4H9	H
A-531	n-C3H7	n-C5H11	H
A-532	i-C3H7	n-C5H11	H
A-533	CH2CH=CH2	n-C5H11	H
A-534	CH2C(CH3)=CH2	n-C5H11	H
A-535	CH2C(CH3)=CHCH3	n-C5H11	H
A-536	CH2CH=C(CH3)2	n-C5H11	H
A-537	CH2Ph	n-C5H11	H
A-538	CH2(3-CF3-Ph)	n-C5H11	H
A-539	n-C3H7	C(CH3)2C2H5	H
A-540	i-C3H7	C(CH3)2C2H5	H
A-541	CH2CH=CH2	C(CH3)2C2H5	H
A-542	CH2C(CH3)=CH2	C(CH3)2C2H5	H
A-543	CH2C(CH3)=CHCH3	C(CH3)2C2H5	H
A-544	CH2CH=C(CH3)2	C(CH3)2C2H5	H
A-545	CH2Ph	C(CH3)2C2H5	H
A-546	CH2(3-CF3-Ph)	C(CH3)2C2H5	H
A-547	n-C3H7	CH2CH2CH(CH3)CH3	H
A-548	i-C3H7	CH2CH2CH(CH3)CH3	H
A-549	CH2CH=CH2	CH2CH2CH(CH3)CH3	H
A-550	CH2C(CH3)=CH2	CH2CH2CH(CH3)CH3	H
A-551	CH2C(CH3)=CHCH3	CH2CH2CH(CH3)CH3	H
A-552	CH2CH=C(CH3)2	CH2CH2CH(CH3)CH3	H
A-553	CH2Ph	CH2CH2CH(CH3)CH3	H
A-554	CH2(3-CF3-Ph)	CH2CH2CH(CH3)CH3	H
A-555	n-C3H7	CH2CH(CH3)C2H5	H
A-556	i-C3H7	CH2CH(CH3)C2H5	H
A-557	CH2CH=CH2	CH2CH(CH3)C2H5	H
A-558	CH2C(CH3)=CH2	CH2CH(CH3)C2H5	H
A-559	CH2C(CH3)=CHCH3	CH2CH(CH3)C2H5	H
A-560	CH2CH=C(CH3)2	CH2CH(CH3)C2H5	H
A-561	CH2Ph	CH2CH(CH3)C2H5	H
A-562	CH2(3-CF3-Ph)	CH2CH(CH3)C2H5	H

Compound	R ¹	R ²	R ³
A-563	n-C ₃ H ₇	n-C ₃ H ₇	CH ₃
A-564	i-C ₃ H ₇	n-C ₃ H ₇	CH ₃
A-565	CH ₂ CH=CH ₂	n-C ₃ H ₇	CH ₃
A-566	CH ₂ C(CH ₃)=CH ₂	n-C ₃ H ₇	CH ₃
A-567	CH ₂ C(CH ₃)=CHCH ₃	n-C ₃ H ₇	CH ₃
A-568	CH ₂ CH=C(CH ₃) ₂	n-C ₃ H ₇	CH ₃
A-569	CH ₂ CO ₂ CH ₃	n-C ₃ H ₇	CH ₃
A-570	CH(CH ₃)CO ₂ CH ₃	n-C ₃ H ₇	CH ₃
A-571	C(CH ₃) ₂ CO ₂ CH ₃	n-C ₃ H ₇	CH ₃
A-572	CH ₂ Ph	n-C ₃ H ₇	CH ₃
A-573	CH ₂ (3-CF ₃ -Ph)	n-C ₃ H ₇	CH ₃
A-574	n-C ₃ H ₇	n-C ₃ H ₇	C ₂ H ₅
A-575	i-C ₃ H ₇	n-C ₃ H ₇	C ₂ H ₅
A-576	CH ₂ CH=CH ₂	n-C ₃ H ₇	C ₂ H ₅
A-577	CH ₂ C(CH ₃)=CH ₂	n-C ₃ H ₇	C ₂ H ₅
A-578	CH ₂ C(CH ₃)=CHCH ₃	n-C ₃ H ₇	C ₂ H ₅
A-579	CH ₂ CH=C(CH ₃) ₂	n-C ₃ H ₇	C ₂ H ₅
A-580	CH ₂ CO ₂ CH ₃	n-C ₃ H ₇	C ₂ H ₅
A-581	CH(CH ₃)CO ₂ CH ₃	n-C ₃ H ₇	C ₂ H ₅
A-582	C(CH ₃) ₂ CO ₂ CH ₃	n-C ₃ H ₇	C ₂ H ₅
A-583	CH ₂ Ph	n-C ₃ H ₇	C ₂ H ₅
A-584	CH ₂ (3-CF ₃ -Ph)	n-C ₃ H ₇	C ₂ H ₅
A-585	n-C ₃ H ₇	i-C ₃ H ₇	CH ₃
A-586	i-C ₃ H ₇	i-C ₃ H ₇	CH ₃
A-587	CH ₂ CH=CH ₂	i-C ₃ H ₇	CH ₃
A-588	CH ₂ C(CH ₃)=CH ₂	i-C ₃ H ₇	CH ₃
A-589	CH ₂ C(CH ₃)=CHCH ₃	i-C ₃ H ₇	CH ₃
A-590	CH ₂ CH=C(CH ₃) ₂	i-C ₃ H ₇	CH ₃
A-591	CH ₂ CO ₂ CH ₃	i-C ₃ H ₇	CH ₃
A-592	CH(CH ₃)CO ₂ CH ₃	i-C ₃ H ₇	CH ₃
A-593	C(CH ₃) ₂ CO ₂ CH ₃	i-C ₃ H ₇	CH ₃
A-594	CH ₂ Ph	i-C ₃ H ₇	CH ₃
A-595	CH ₂ (3-CF ₃ -Ph)	i-C ₃ H ₇	CH ₃
A-596	n-C ₃ H ₇	i-C ₃ H ₇	C ₂ H ₅
A-597	i-C ₃ H ₇	i-C ₃ H ₇	C ₂ H ₅
A-598	CH ₂ CH=CH ₂	i-C ₃ H ₇	C ₂ H ₅
A-599	CH ₂ C(CH ₃)=CH ₂	i-C ₃ H ₇	C ₂ H ₅
A-600	CH ₂ C(CH ₃)=CHCH ₃	i-C ₃ H ₇	C ₂ H ₅
A-601	CH ₂ CH=C(CH ₃) ₂	i-C ₃ H ₇	C ₂ H ₅
A-602	CH ₂ CO ₂ CH ₃	i-C ₃ H ₇	C ₂ H ₅
A-603	CH(CH ₃)CO ₂ CH ₃	i-C ₃ H ₇	C ₂ H ₅
A-604	C(CH ₃) ₂ CO ₂ CH ₃	i-C ₃ H ₇	C ₂ H ₅
A-605	CH ₂ Ph	i-C ₃ H ₇	C ₂ H ₅

Compound	R ¹	R ²	R ³
A-606	CH2(3-CF ₃ -Ph)	i-C ₃ H ₇	C ₂ H ₅
A-607	n-C ₃ H ₇	n-C ₄ H ₉	CH ₃
A-608	i-C ₃ H ₇	n-C ₄ H ₉	CH ₃
A-609	CH ₂ CH=CH ₂	n-C ₄ H ₉	CH ₃
A-610	CH ₂ C(CH ₃)=CH ₂	n-C ₄ H ₉	CH ₃
A-611	CH ₂ C(CH ₃)=CHCH ₃	n-C ₄ H ₉	CH ₃
A-612	CH ₂ CH=C(CH ₃) ₂	n-C ₄ H ₉	CH ₃
A-613	CH ₂ CO ₂ CH ₃	n-C ₄ H ₉	CH ₃
A-614	CH(CH ₃)CO ₂ CH ₃	n-C ₄ H ₉	CH ₃
A-615	C(CH ₃) ₂ CO ₂ CH ₃	n-C ₄ H ₉	CH ₃
A-616	CH ₂ Ph	n-C ₄ H ₉	CH ₃
A-617	CH ₂ (3-CF ₃ -Ph)	n-C ₄ H ₉	CH ₃
A-618	n-C ₃ H ₇	CH ₂ CH ₂ OCH ₃	H
A-619	i-C ₃ H ₇	CH ₂ CH ₂ OCH ₃	H
A-620	CH ₂ CH=CH ₂	CH ₂ CH ₂ OCH ₃	H
A-621	CH ₂ C(CH ₃)=CH ₂	CH ₂ CH ₂ OCH ₃	H
A-622	CH ₂ C(CH ₃)=CHCH ₃	CH ₂ CH ₂ OCH ₃	H
A-623	CH ₂ CH=C(CH ₃) ₂	CH ₂ CH ₂ OCH ₃	H
A-624	CH ₂ Ph	CH ₂ CH ₂ OCH ₃	H
A-625	CH ₂ (3-CF ₃ -Ph)	CH ₂ CH ₂ OCH ₃	H
A-626	n-C ₃ H ₇	CH ₂ CH ₂ OC ₂ H ₅	H
A-627	i-C ₃ H ₇	CH ₂ CH ₂ OC ₂ H ₅	H
A-628	CH ₂ CH=CH ₂	CH ₂ CH ₂ OC ₂ H ₅	H
A-629	CH ₂ C(CH ₃)=CH ₂	CH ₂ CH ₂ OC ₂ H ₅	H
A-630	CH ₂ C(CH ₃)=CHCH ₃	CH ₂ CH ₂ OC ₂ H ₅	H
A-631	CH ₂ CH=C(CH ₃) ₂	CH ₂ CH ₂ OC ₂ H ₅	H
A-632	CH ₂ Ph	CH ₂ CH ₂ OC ₂ H ₅	H
A-633	CH ₂ (3-CF ₃ -Ph)	CH ₂ CH ₂ OC ₂ H ₅	H
A-634	n-C ₃ H ₇	CH ₂ CH ₂ OC ₂ H ₄ CH ₃	H
A-635	i-C ₃ H ₇	CH ₂ CH ₂ OC ₂ H ₄ CH ₃	H
A-636	CH ₂ CH=CH ₂	CH ₂ CH ₂ OC ₂ H ₄ CH ₃	H
A-637	CH ₂ C(CH ₃)=CH ₂	CH ₂ CH ₂ OC ₂ H ₄ CH ₃	H
A-638	CH ₂ C(CH ₃)=CHCH ₃	CH ₂ CH ₂ OC ₂ H ₄ CH ₃	H
A-639	CH ₂ CH=C(CH ₃) ₂	CH ₂ CH ₂ OC ₂ H ₄ CH ₃	H
A-640	CH ₂ Ph	CH ₂ CH ₂ OC ₂ H ₄ CH ₃	H
A-641	CH ₂ (3-CF ₃ -Ph)	CH ₂ CH ₂ OC ₂ H ₄ CH ₃	H
A-642	n-C ₃ H ₇	CH ₂ CH ₂ OC ₃ H ₇ CH ₃	H
A-643	i-C ₃ H ₇	CH ₂ CH ₂ OC ₃ H ₇ CH ₃	H
A-644	CH ₂ CH=CH ₂	CH ₂ CH ₂ OC ₃ H ₇ CH ₃	H
A-645	CH ₂ C(CH ₃)=CH ₂	CH ₂ CH ₂ OC ₃ H ₇ CH ₃	H
A-646	CH ₂ C(CH ₃)=CHCH ₃	CH ₂ CH ₂ OC ₃ H ₇ CH ₃	H
A-647	CH ₂ CH=C(CH ₃) ₂	CH ₂ CH ₂ OC ₃ H ₇ CH ₃	H
A-648	CH ₂ Ph	CH ₂ CH ₂ OC ₃ H ₇ CH ₃	H

Compound	R ¹	R ²	R ³
A-649	CH2(3-CF ₃ -Ph)	CH2CH2OC ₃ H ₇ CH ₃	H
A-650	n-C ₃ H ₇	CH ₂ CF ₃	H
A-651	i-C ₃ H ₇	CH ₂ CF ₃	H
A-652	CH ₂ CH=CH ₂	CH ₂ CF ₃	H
A-653	CH ₂ C(CH ₃)=CH ₂	CH ₂ CF ₃	H
A-654	CH ₂ C(CH ₃)=CHCH ₃	CH ₂ CF ₃	H
A-655	CH ₂ CH=C(CH ₃) ₂	CH ₂ CF ₃	H
A-656	CH ₂ Ph	CH ₂ CF ₃	H
A-657	CH2(3-CF ₃ -Ph)	CH ₂ CF ₃	H
A-658	n-C ₃ H ₇	CH ₂ CN	H
A-659	i-C ₃ H ₇	CH ₂ CN	H
A-660	CH ₂ CH=CH ₂	CH ₂ CN	H
A-661	CH ₂ C(CH ₃)=CH ₂	CH ₂ CN	H
A-662	CH ₂ C(CH ₃)=CHCH ₃	CH ₂ CN	H
A-663	CH ₂ CH=C(CH ₃) ₂	CH ₂ CN	H
A-664	CH ₂ Ph	CH ₂ CN	H
A-665	CH2(3-CF ₃ -Ph)	CH ₂ CN	H
A-666	n-C ₃ H ₇	C(CH ₃) ₂ CN	H
A-667	i-C ₃ H ₇	C(CH ₃) ₂ CN	H
A-668	CH ₂ CH=CH ₂	C(CH ₃) ₂ CN	H
A-669	CH ₂ C(CH ₃)=CH ₂	C(CH ₃) ₂ CN	H
A-670	CH ₂ C(CH ₃)=CHCH ₃	C(CH ₃) ₂ CN	H
A-671	CH ₂ CH=C(CH ₃) ₂	C(CH ₃) ₂ CN	H
A-672	CH ₂ Ph	C(CH ₃) ₂ CN	H
A-673	CH2(3-CF ₃ -Ph)	C(CH ₃) ₂ CN	H
A-674	n-C ₃ H ₇	C(CH ₃)(i-C ₃ H ₇)CN	H
A-675	i-C ₃ H ₇	C(CH ₃)(i-C ₃ H ₇)CN	H
A-676	CH ₂ CH=CH ₂	C(CH ₃)(i-C ₃ H ₇)CN	H
A-677	CH ₂ C(CH ₃)=CH ₂	C(CH ₃)(i-C ₃ H ₇)CN	H
A-678	CH ₂ C(CH ₃)=CHCH ₃	C(CH ₃)(i-C ₃ H ₇)CN	H
A-679	CH ₂ CH=C(CH ₃) ₂	C(CH ₃)(i-C ₃ H ₇)CN	H
A-680	CH ₂ Ph	C(CH ₃)(i-C ₃ H ₇)CN	H
A-681	CH2(3-CF ₃ -Ph)	C(CH ₃)(i-C ₃ H ₇)CN	H
A-682	n-C ₃ H ₇	CH ₂ CH=CH ₂	H
A-683	i-C ₃ H ₇	CH ₂ CH=CH ₂	H
A-684	CH ₂ CH=CH ₂	CH ₂ CH=CH ₂	H
A-685	CH ₂ C(CH ₃)=CH ₂	CH ₂ CH=CH ₂	H
A-686	CH ₂ C(CH ₃)=CHCH ₃	CH ₂ CH=CH ₂	H
A-687	CH ₂ CH=C(CH ₃) ₂	CH ₂ CH=CH ₂	H
A-688	CH ₂ Ph	CH ₂ CH=CH ₂	H
A-689	CH2(3-CF ₃ -Ph)	CH ₂ CH=CH ₂	H
A-690	n-C ₃ H ₇	CH ₂ C(CH ₃)=CH ₂	H
A-691	i-C ₃ H ₇	CH ₂ C(CH ₃)=CH ₂	H

Compound	R ¹	R ²	R ³
A-692	CH ₂ CH=CH ₂	CH ₂ C(CH ₃)=CH ₂	H
A-693	CH ₂ C(CH ₃)=CH ₂	CH ₂ C(CH ₃)=CH ₂	H
A-694	CH ₂ C(CH ₃)=CHCH ₃	CH ₂ C(CH ₃)=CH ₂	H
A-695	CH ₂ CH=C(CH ₃) ₂	CH ₂ C(CH ₃)=CH ₂	H
A-696	CH ₂ Ph	CH ₂ C(CH ₃)=CH ₂	H
A-697	CH ₂ (3-CF ₃ -Ph)	CH ₂ C(CH ₃)=CH ₂	H
A-698	n-C ₃ H ₇	CH ₂ CH=CHCH ₃	H
A-699	i-C ₃ H ₇	CH ₂ CH=CHCH ₃	H
A-700	CH ₂ CH=CH ₂	CH ₂ CH=CHCH ₃	H
A-701	CH ₂ C(CH ₃)=CH ₂	CH ₂ CH=CHCH ₃	H
A-702	CH ₂ C(CH ₃)=CHCH ₃	CH ₂ CH=CHCH ₃	H
A-703	CH ₂ CH=C(CH ₃) ₂	CH ₂ CH=CHCH ₃	H
A-704	CH ₂ Ph	CH ₂ CH=CHCH ₃	H
A-705	CH ₂ (3-CF ₃ -Ph)	CH ₂ CH=CHCH ₃	H
A-706	n-C ₃ H ₇	CH ₂ CCH	H
A-707	i-C ₃ H ₇	CH ₂ CCH	H
A-708	CH ₂ CH=CH ₂	CH ₂ CCH	H
A-709	CH ₂ C(CH ₃)=CH ₂	CH ₂ CCH	H
A-710	CH ₂ C(CH ₃)=CHCH ₃	CH ₂ CCH	H
A-711	CH ₂ CH=C(CH ₃) ₂	CH ₂ CCH	H
A-712	CH ₂ Ph	CH ₂ CCH	H
A-713	CH ₂ (3-CF ₃ -Ph)	CH ₂ CCH	H
A-714	CH ₃	CH ₂ Ph	H
A-715	C ₂ H ₅	CH ₂ Ph	H
A-716	n-C ₃ H ₇	CH ₂ Ph	H
A-717	i-C ₃ H ₇	CH ₂ Ph	H
A-718	n-C ₄ H ₉	CH ₂ Ph	H
A-719	s-C ₄ H ₉	CH ₂ Ph	H
A-720	i-C ₄ H ₉	CH ₂ Ph	H
A-721	t-C ₄ H ₉	CH ₂ Ph	H
A-722	n-C ₅ H ₁₁	CH ₂ Ph	H
A-723	n-C ₆ H ₁₃	CH ₂ Ph	H
A-724	CH ₂ CH=CH ₂	CH ₂ Ph	H
A-725	CH ₂ C(CH ₃)=CH ₂	CH ₂ Ph	H
A-726	CH ₂ CH=CHCH ₃	CH ₂ Ph	H
A-727	CH ₂ CH=C(CH ₃) ₂	CH ₂ Ph	H
A-728	CH ₂ CCI=CH ₂	CH ₂ Ph	H
A-729	CH ₂ CH=CCl ₂	CH ₂ Ph	H
A-730	CH ₂ CH=CHCF ₃	CH ₂ Ph	H
A-731	CH ₂ CH=CHPh	CH ₂ Ph	H
A-732	CH(CH ₃)CH=CH ₂	CH ₂ Ph	H
A-733	CH ₂ CCH	CH ₂ Ph	H
A-734	CH ₂ CCCH ₃	CH ₂ Ph	H

Compound	R ¹	R ²	R ³
A-735	CH ₂ CF ₃	CH ₂ Ph	H
A-736	CH ₂ CH ₂ OCH ₃	CH ₂ Ph	H
A-737	CH ₂ CH ₂ OC ₂ H ₅	CH ₂ Ph	H
A-738	CH ₂ CH ₂ CH ₂ OCH ₃	CH ₂ Ph	H
A-739	CH ₂ CH ₂ CH ₂ OC ₂ H ₅	CH ₂ Ph	H
A-740	CH ₂ CH(OC ₂ H ₅) ₂	CH ₂ Ph	H
A-741	CH ₂ CN	CH ₂ Ph	H
A-742	CH ₂ (cyclo-C ₃ H ₅)	CH ₂ Ph	H
A-743	CH ₂ (cyclo-C ₅ H ₉)	CH ₂ Ph	H
A-744	CH ₂ (cyclo-C ₆ H ₁₁)	CH ₂ Ph	H
A-745	CH ₂ Ph	CH ₂ Ph	H
A-746	CH ₂ (2-Cl-Ph)	CH ₂ Ph	H
A-747	CH ₂ (3-Cl-Ph)	CH ₂ Ph	H
A-748	CH ₂ (4-Cl-Ph)	CH ₂ Ph	H
A-749	CH ₂ (2-CF ₃ -Ph)	CH ₂ Ph	H
A-750	CH ₂ (3-CF ₃ -Ph)	CH ₂ Ph	H
A-751	CH ₂ (4-CF ₃ -Ph)	CH ₂ Ph	H
A-752	CH ₂ (2-F-Ph)	CH ₂ Ph	H
A-753	CH ₂ (3-F-Ph)	CH ₂ Ph	H
A-754	CH ₂ (4-F-Ph)	CH ₂ Ph	H
A-755	CH ₂ (2-OMe-Ph)	CH ₂ Ph	H
A-756	CH ₂ (3-OMe-Ph)	CH ₂ Ph	H
A-757	CH ₂ (4-OMe-Ph)	CH ₂ Ph	H
A-758	CH(CH ₃)Ph	CH ₂ Ph	H
A-759	CH(CH ₃)(2-Cl-Ph)	CH ₂ Ph	H
A-760	CH(CH ₃)(3-Cl-Ph)	CH ₂ Ph	H
A-761	CH(CH ₃)(4-Cl-Ph)	CH ₂ Ph	H
A-762	CH(CH ₃)(2-CF ₃ -Ph)	CH ₂ Ph	H
A-763	CH(CH ₃)(3-CF ₃ -Ph)	CH ₂ Ph	H
A-764	CH(CH ₃)(4-CF ₃ -Ph)	CH ₂ Ph	H
A-765	CH ₂ CH ₂ Ph	CH ₂ Ph	H
A-766	CH ₃	CH ₂ Ph	CH ₃
A-767	C ₂ H ₅	CH ₂ Ph	CH ₃
A-768	n-C ₃ H ₇	CH ₂ Ph	CH ₃
A-769	i-C ₃ H ₇	CH ₂ Ph	CH ₃
A-770	n-C ₄ H ₉	CH ₂ Ph	CH ₃
A-771	s-C ₄ H ₉	CH ₂ Ph	CH ₃
A-772	i-C ₄ H ₉	CH ₂ Ph	CH ₃
A-773	t-C ₄ H ₉	CH ₂ Ph	CH ₃
A-774	n-C ₅ H ₁₁	CH ₂ Ph	CH ₃
A-775	n-C ₆ H ₁₃	CH ₂ Ph	CH ₃
A-776	CH ₂ CH=CH ₂	CH ₂ Ph	CH ₃
A-777	CH ₂ C(CH ₃)=CH ₂	CH ₂ Ph	CH ₃

Compound	R ¹	R ²	R ³
A-778	CH2C(CH3)=CHCH3	CH2Ph	CH3
A-779	CH2CH=C(CH3)2	CH2Ph	CH3
A-780	CH2CCl=CH2	CH2Ph	CH3
A-781	CH2CH=CCl2	CH2Ph	CH3
A-782	CH2CH=CHCF3	CH2Ph	CH3
A-783	CH2CH=CHPh	CH2Ph	CH3
A-784	CH(CH3)CH=CH2	CH2Ph	CH3
A-785	CH2CCH	CH2Ph	CH3
A-786	CH2CCCH3	CH2Ph	CH3
A-787	CH2CF3	CH2Ph	CH3
A-788	CH2CH2OCH3	CH2Ph	CH3
A-789	CH2CH2OC2H5	CH2Ph	CH3
A-790	CH2CH2CH2OCH3	CH2Ph	CH3
A-791	CH2CH2CH2OC2H5	CH2Ph	CH3
A-792	CH2CH(OCH3)2	CH2Ph	CH3
A-793	CH2CN	CH2Ph	CH3
A-794	CH2(cyclo-C3H5)	CH2Ph	CH3
A-795	CH2(cyclo-C5H9)	CH2Ph	CH3
A-796	CH2(cyclo-C6H11)	CH2Ph	CH3
A-797	CH2CO2CH3	CH2Ph	CH3
A-798	CH2CO2C2H5	CH2Ph	CH3
A-799	CH(CH3)CO2CH3	CH2Ph	CH3
A-800	CH(CH3)CO2C2H5	CH2Ph	CH3
A-801	C(CH3)2CO2CH3	CH2Ph	CH3
A-802	C(CH3)2CO2C2H5	CH2Ph	CH3
A-803	CH2Ph	CH2Ph	CH3
A-804	CH2(2-Cl-Ph)	CH2Ph	CH3
A-805	CH2(3-Cl-Ph)	CH2Ph	CH3
A-806	CH2(4-Cl-Ph)	CH2Ph	CH3
A-807	CH2(2-CF3-Ph)	CH2Ph	CH3
A-808	CH2(3-CF3-Ph)	CH2Ph	CH3
A-809	CH2(4-CF3-Ph)	CH2Ph	CH3
A-810	CH2(2-F-Ph)	CH2Ph	CH3
A-811	CH2(3-F-Ph)	CH2Ph	CH3
A-812	CH2(4-F-Ph)	CH2Ph	CH3
A-813	CH2(2-OMe-Ph)	CH2Ph	CH3
A-814	CH2(3-OMe-Ph)	CH2Ph	CH3
A-815	CH2(4-OMe-Ph)	CH2Ph	CH3
A-816	CH(CH3)Ph	CH2Ph	CH3
A-817	CH(CH3)(2-Cl-Ph)	CH2Ph	CH3
A-818	CH(CH3)(3-Cl-Ph)	CH2Ph	CH3
A-819	CH(CH3)(4-Cl-Ph)	CH2Ph	CH3
A-820	CH(CH3)(2-CF3-Ph)	CH2Ph	CH3

Compound	R ¹	R ²	R ³
A-821	CH(CH3)(3-CF3-Ph)	CH2Ph	CH3
A-822	CH(CH3)(4-CF3-Ph)	CH2Ph	CH3
A-823	CH2CH2Ph	CH2Ph	CH3
A-824	n-C3H7	CH2(2-OMe-Ph)	H
A-825	i-C3H7	CH2(2-OMe-Ph)	H
A-826	CH2CH=CH2	CH2(2-OMe-Ph)	H
A-827	CH2C(CH3)=CH2	CH2(2-OMe-Ph)	H
A-828	CH2C(CH3)=CHCH3	CH2(2-OMe-Ph)	H
A-829	CH2CH=C(CH3)2	CH2(2-OMe-Ph)	H
A-830	CH2Ph	CH2(2-OMe-Ph)	H
A-831	CH2(3-CF3-Ph)	CH2(2-OMe-Ph)	H
A-832	n-C3H7	CH2(3-OMe-Ph)	H
A-833	i-C3H7	CH2(3-OMe-Ph)	H
A-834	CH2CH=CH2	CH2(3-OMe-Ph)	H
A-835	CH2C(CH3)=CH2	CH2(3-OMe-Ph)	H
A-836	CH2C(CH3)=CHCH3	CH2(3-OMe-Ph)	H
A-837	CH2CH=C(CH3)2	CH2(3-OMe-Ph)	H
A-838	CH2Ph	CH2(3-OMe-Ph)	H
A-839	CH2(3-CF3-Ph)	CH2(3-OMe-Ph)	H
A-840	n-C3H7	CH2(4-OMe-Ph)	H
A-841	i-C3H7	CH2(4-OMe-Ph)	H
A-842	CH2CH=CH2	CH2(4-OMe-Ph)	H
A-843	CH2C(CH3)=CH2	CH2(4-OMe-Ph)	H
A-844	CH2C(CH3)=CHCH3	CH2(4-OMe-Ph)	H
A-845	CH2CH=C(CH3)2	CH2(4-OMe-Ph)	H
A-846	CH2Ph	CH2(4-OMe-Ph)	H
A-847	CH2(3-CF3-Ph)	CH2(4-OMe-Ph)	H
A-848	n-C3H7	CH2(2-Cl-Ph)	H
A-849	i-C3H7	CH2(2-Cl-Ph)	H
A-850	CH2CH=CH2	CH2(2-Cl-Ph)	H
A-851	CH2C(CH3)=CH2	CH2(2-Cl-Ph)	H
A-852	CH2C(CH3)=CHCH3	CH2(2-Cl-Ph)	H
A-853	CH2CH=C(CH3)2	CH2(2-Cl-Ph)	H
A-854	CH2Ph	CH2(2-Cl-Ph)	H
A-855	CH2(3-CF3-Ph)	CH2(2-Cl-Ph)	H
A-856	n-C3H7	CH2(3-Cl-Ph)	H
A-857	i-C3H7	CH2(3-Cl-Ph)	H
A-858	CH2CH=CH2	CH2(3-Cl-Ph)	H
A-859	CH2C(CH3)=CH2	CH2(3-Cl-Ph)	H
A-860	CH2C(CH3)=CHCH3	CH2(3-Cl-Ph)	H
A-861	CH2CH=C(CH3)2	CH2(3-Cl-Ph)	H
A-862	CH2Ph	CH2(3-Cl-Ph)	H
A-863	CH2(3-CF3-Ph)	CH2(3-Cl-Ph)	H

Compound	R ¹	R ²	R ³
A-864	n-C ₃ H ₇	CH ₂ (4-Cl-Ph)	H
A-865	i-C ₃ H ₇	CH ₂ (4-Cl-Ph)	H
A-866	CH ₂ CH=CH ₂	CH ₂ (4-Cl-Ph)	H
A-867	CH ₂ C(CH ₃)=CH ₂	CH ₂ (4-Cl-Ph)	H
A-868	CH ₂ C(CH ₃)=CHCH ₃	CH ₂ (4-Cl-Ph)	H
A-869	CH ₂ CH=C(CH ₃) ₂	CH ₂ (4-Cl-Ph)	H
A-870	CH ₂ Ph	CH ₂ (4-Cl-Ph)	H
A-871	CH ₂ (3-CF ₃ -Ph)	CH ₂ (4-Cl-Ph)	H
A-872	n-C ₃ H ₇	CH ₂ (2-CF ₃ -Ph)	H
A-873	i-C ₃ H ₇	CH ₂ (2-CF ₃ -Ph)	H
A-874	CH ₂ CH=CH ₂	CH ₂ (2-CF ₃ -Ph)	H
A-875	CH ₂ C(CH ₃)=CH ₂	CH ₂ (2-CF ₃ -Ph)	H
A-876	CH ₂ C(CH ₃)=CHCH ₃	CH ₂ (2-CF ₃ -Ph)	H
A-877	CH ₂ CH=C(CH ₃) ₂	CH ₂ (2-CF ₃ -Ph)	H
A-878	CH ₂ Ph	CH ₂ (2-CF ₃ -Ph)	H
A-879	CH ₂ (3-CF ₃ -Ph)	CH ₂ (2-CF ₃ -Ph)	H
A-880	n-C ₃ H ₇	CH ₂ (3-CF ₃ -Ph)	H
A-881	i-C ₃ H ₇	CH ₂ (3-CF ₃ -Ph)	H
A-882	CH ₂ CH=CH ₂	CH ₂ (3-CF ₃ -Ph)	H
A-883	CH ₂ C(CH ₃)=CH ₂	CH ₂ (3-CF ₃ -Ph)	H
A-884	CH ₂ C(CH ₃)=CHCH ₃	CH ₂ (3-CF ₃ -Ph)	H
A-885	CH ₂ CH=C(CH ₃) ₂	CH ₂ (3-CF ₃ -Ph)	H
A-886	CH ₂ Ph	CH ₂ (3-CF ₃ -Ph)	H
A-887	CH ₂ (3-CF ₃ -Ph)	CH ₂ (3-CF ₃ -Ph)	H
A-888	n-C ₃ H ₇	CH ₂ (4-CF ₃ -Ph)	H
A-889	i-C ₃ H ₇	CH ₂ (4-CF ₃ -Ph)	H
A-890	CH ₂ CH=CH ₂	CH ₂ (4-CF ₃ -Ph)	H
A-891	CH ₂ C(CH ₃)=CH ₂	CH ₂ (4-CF ₃ -Ph)	H
A-892	CH ₂ C(CH ₃)=CHCH ₃	CH ₂ (4-CF ₃ -Ph)	H
A-893	CH ₂ CH=C(CH ₃) ₂	CH ₂ (4-CF ₃ -Ph)	H
A-894	CH ₂ Ph	CH ₂ (4-CF ₃ -Ph)	H
A-895	CH ₂ (3-CF ₃ -Ph)	CH ₂ (4-CF ₃ -Ph)	H
A-896	CH ₃	cyclo-C ₃ H ₅	H
A-897	C ₂ H ₅	cyclo-C ₃ H ₅	H
A-898	n-C ₃ H ₇	cyclo-C ₃ H ₅	H
A-899	i-C ₃ H ₇	cyclo-C ₃ H ₅	H
A-900	n-C ₄ H ₉	cyclo-C ₃ H ₅	H
A-901	s-C ₄ H ₉	cyclo-C ₃ H ₅	H
A-902	n-C ₅ H ₁₁	cyclo-C ₃ H ₅	H
A-903	n-C ₆ H ₁₃	cyclo-C ₃ H ₅	H
A-904	CH ₂ CH=CH ₂	cyclo-C ₃ H ₅	H
A-905	CH ₂ C(CH ₃)=CH ₂	cyclo-C ₃ H ₅	H
A-906	CH ₂ C(CH ₃)=CHCH ₃	cyclo-C ₃ H ₅	H

Compound	R ¹	R ²	R ³
A-907	CH ₂ CH=C(CH ₃) ₂	cyclo-C ₃ H ₅	H
A-908	CH ₂ CCl=CH ₂	cyclo-C ₃ H ₅	H
A-909	CH ₂ CH=CCl ₂	cyclo-C ₃ H ₅	H
A-910	CH ₂ CH=CHCF ₃	cyclo-C ₃ H ₅	H
A-911	CH(CH ₃)CH=CH ₂	cyclo-C ₃ H ₅	H
A-912	CH ₂ CCCH ₃	cyclo-C ₃ H ₅	H
A-913	CH ₂ CF ₃	cyclo-C ₃ H ₅	H
A-914	CH ₂ CH ₂ OCH ₃	cyclo-C ₃ H ₅	H
A-915	CH ₂ CH ₂ OC ₂ H ₅	cyclo-C ₃ H ₅	H
A-916	CH ₂ CH ₂ CH ₂ OCH ₃	cyclo-C ₃ H ₅	H
A-917	CH ₂ CH ₂ CH ₂ OC ₂ H ₅	cyclo-C ₃ H ₅	H
A-918	CH ₂ CH(OCH ₃) ₂	cyclo-C ₃ H ₅	H
A-919	CH ₂ Ph	cyclo-C ₃ H ₅	H
A-920	CH ₂ (2-Cl-Ph)	cyclo-C ₃ H ₅	H
A-921	CH ₂ (3-Cl-Ph)	cyclo-C ₃ H ₅	H
A-922	CH ₂ (4-Cl-Ph)	cyclo-C ₃ H ₅	H
A-923	CH ₂ (2-CF ₃ -Ph)	cyclo-C ₃ H ₅	H
A-924	CH ₂ (3-CF ₃ -Ph)	cyclo-C ₃ H ₅	H
A-925	CH ₂ (4-CF ₃ -Ph)	cyclo-C ₃ H ₅	H
A-926	CH(CH ₃)Ph	cyclo-C ₃ H ₅	H
A-927	CH ₃	cyclo-C ₅ H ₉	H
A-928	C ₂ H ₅	cyclo-C ₅ H ₉	H
A-929	n-C ₃ H ₇	cyclo-C ₅ H ₉	H
A-930	i-C ₃ H ₇	cyclo-C ₅ H ₉	H
A-931	n-C ₄ H ₉	cyclo-C ₅ H ₉	H
A-932	s-C ₄ H ₉	cyclo-C ₅ H ₉	H
A-933	n-C ₅ H ₁₁	cyclo-C ₅ H ₉	H
A-934	n-C ₆ H ₁₃	cyclo-C ₅ H ₉	H
A-935	CH ₂ CH=CH ₂	cyclo-C ₅ H ₉	H
A-936	CH ₂ C(CH ₃)=CH ₂	cyclo-C ₅ H ₉	H
A-937	CH ₂ C(CH ₃)=CHCH ₃	cyclo-C ₅ H ₉	H
A-938	CH ₂ CH=C(CH ₃) ₂	cyclo-C ₅ H ₉	H
A-939	CH ₂ CCl=CH ₂	cyclo-C ₅ H ₉	H
A-940	CH ₂ CH=CCl ₂	cyclo-C ₅ H ₉	H
A-941	CH ₂ CH=CHCF ₃	cyclo-C ₅ H ₉	H
A-942	CH(CH ₃)CH=CH ₂	cyclo-C ₅ H ₉	H
A-943	CH ₂ CCCH ₃	cyclo-C ₅ H ₉	H
A-944	CH ₂ CF ₃	cyclo-C ₅ H ₉	H
A-945	CH ₂ CH ₂ OCH ₃	cyclo-C ₅ H ₉	H
A-946	CH ₂ CH ₂ OC ₂ H ₅	cyclo-C ₅ H ₉	H
A-947	CH ₂ CH ₂ CH ₂ OCH ₃	cyclo-C ₅ H ₉	H
A-948	CH ₂ CH ₂ CH ₂ OC ₂ H ₅	cyclo-C ₅ H ₉	H
A-949	CH ₂ CH(OCH ₃) ₂	cyclo-C ₅ H ₉	H

Compound	R ¹	R ²	R ³
A-950	CH2Ph	cyclo-C5H9	H
A-951	CH2(2-Cl-Ph)	cyclo-C5H9	H
A-952	CH2(3-Cl-Ph)	cyclo-C5H9	H
A-953	CH2(4-Cl-Ph)	cyclo-C5H9	H
A-954	CH2(2-CF ₃ -Ph)	cyclo-C5H9	H
A-955	CH2(3-CF ₃ -Ph)	cyclo-C5H9	H
A-956	CH2(4-CF ₃ -Ph)	cyclo-C5H9	H
A-957	CH(CH ₃)Ph	cyclo-C5H9	H
A-958	CH ₃	cyclo-C6H11	H
A-959	C ₂ H ₅	cyclo-C6H11	H
A-960	n-C ₃ H ₇	cyclo-C6H11	H
A-961	i-C ₃ H ₇	cyclo-C6H11	H
A-962	n-C ₄ H ₉	cyclo-C6H11	H
A-963	s-C ₄ H ₉	cyclo-C6H11	H
A-964	n-C ₅ H ₁₁	cyclo-C6H11	H
A-965	n-C ₆ H ₁₃	cyclo-C6H11	H
A-966	CH ₂ CH=CH ₂	cyclo-C6H11	H
A-967	CH ₂ C(CH ₃)=CH ₂	cyclo-C6H11	H
A-968	CH ₂ C(CH ₃)=CHCH ₃	cyclo-C6H11	H
A-969	CH ₂ CH=C(CH ₃) ₂	cyclo-C6H11	H
A-970	CH ₂ CCl=CH ₂	cyclo-C6H11	H
A-971	CH ₂ CH=CCl ₂	cyclo-C6H11	H
A-972	CH ₂ CH=CHCF ₃	cyclo-C6H11	H
A-973	CH(CH ₃)CH=CH ₂	cyclo-C6H11	H
A-974	CH ₂ CCCH ₃	cyclo-C6H11	H
A-975	CH ₂ CF ₃	cyclo-C6H11	H
A-976	CH ₂ CH ₂ OCH ₃	cyclo-C6H11	H
A-977	CH ₂ CH ₂ OC ₂ H ₅	cyclo-C6H11	H
A-978	CH ₂ CH ₂ CH ₂ OCH ₃	cyclo-C6H11	H
A-979	CH ₂ CH ₂ CH ₂ OC ₂ H ₅	cyclo-C6H11	H
A-980	CH ₂ CH(OCH ₃) ₂	cyclo-C6H11	H
A-981	CH ₂ Ph	cyclo-C6H11	H
A-982	CH ₂ (2-Cl-Ph)	cyclo-C6H11	H
A-983	CH ₂ (3-Cl-Ph)	cyclo-C6H11	H
A-984	CH ₂ (4-Cl-Ph)	cyclo-C6H11	H
A-985	CH ₂ (2-CF ₃ -Ph)	cyclo-C6H11	H
A-986	CH ₂ (3-CF ₃ -Ph)	cyclo-C6H11	H
A-987	CH ₂ (4-CF ₃ -Ph)	cyclo-C6H11	H
A-988	CH(CH ₃)Ph	cyclo-C6H11	H
A-989	CH ₃	cyclo-C6H11	CH ₃
A-990	C ₂ H ₅	cyclo-C6H11	CH ₃
A-991	n-C ₃ H ₇	cyclo-C6H11	CH ₃
A-992	i-C ₃ H ₇	cyclo-C6H11	CH ₃

Compound	R ¹	R ²	R ³
A-993	n-C4H9	cyclo-C6H11	CH3
A-994	s-C4H9	cyclo-C6H11	CH3
A-995	n-C5H11	cyclo-C6H11	CH3
A-996	n-C6H13	cyclo-C6H11	CH3
A-997	CH2CH=CH2	cyclo-C6H11	CH3
A-998	CH2C(CH3)=CH2	cyclo-C6H11	CH3
A-999	CH2C(CH3)=CHCH3	cyclo-C6H11	CH3
A-1000	CH2CH=C(CH3)2	cyclo-C6H11	CH3
A-1001	CH2CCl=CH2	cyclo-C6H11	CH3
A-1002	CH2CH=CCl2	cyclo-C6H11	CH3
A-1003	CH2CH=CHCF3	cyclo-C6H11	CH3
A-1004	CH(CH3)CH=CH2	cyclo-C6H11	CH3
A-1005	CH2CCCH3	cyclo-C6H11	CH3
A-1006	CH2CF3	cyclo-C6H11	CH3
A-1007	CH2CH2OCH3	cyclo-C6H11	CH3
A-1008	CH2CH2OC2H5	cyclo-C6H11	CH3
A-1009	CH2CH2CH2OCH3	cyclo-C6H11	CH3
A-1010	CH2CH2CH2OC2H5	cyclo-C6H11	CH3
A-1011	CH2CH(OCH3)2	cyclo-C6H11	CH3
A-1012	CH2CO2CH3	cyclo-C6H11	CH3
A-1013	CH2CO2C2H5	cyclo-C6H11	CH3
A-1014	CH(CH3)CO2CH3	cyclo-C6H11	CH3
A-1015	CH(CH3)CO2C2H5	cyclo-C6H11	CH3
A-1016	C(CH3)2CO2CH3	cyclo-C6H11	CH3
A-1017	C(CH3)2CO2C2H5	cyclo-C6H11	CH3
A-1018	CH2Ph	cyclo-C6H11	CH3
A-1019	CH2(2-Cl-Ph)	cyclo-C6H11	CH3
A-1020	CH2(3-Cl-Ph)	cyclo-C6H11	CH3
A-1021	CH2(4-Cl-Ph)	cyclo-C6H11	CH3
A-1022	CH2(2-CF3-Ph)	cyclo-C6H11	CH3
A-1023	CH2(3-CF3-Ph)	cyclo-C6H11	CH3
A-1024	CH2(4-CF3-Ph)	cyclo-C6H11	CH3
A-1025	CH(CH3)Ph	cyclo-C6H11	CH3
A-1026	CH3	cyclo-C6H11	C2H5
A-1027	C2H5	cyclo-C6H11	C2H5
A-1028	n-C3H7	cyclo-C6H11	C2H5
A-1029	i-C3H7	cyclo-C6H11	C2H5
A-1030	n-C4H9	cyclo-C6H11	C2H5
A-1031	s-C4H9	cyclo-C6H11	C2H5
A-1032	n-C5H11	cyclo-C6H11	C2H5
A-1033	n-C6H13	cyclo-C6H11	C2H5
A-1034	CH2CH=CH2	cyclo-C6H11	C2H5
A-1035	CH2C(CH3)=CH2	cyclo-C6H11	C2H5

Compound	R ¹	R ²	R ³
A-1036	CH2C(CH3)=CHCH3	cyclo-C6H11	C2H5
A-1037	CH2CH=C(CH3)2	cyclo-C6H11	C2H5
A-1038	CH2CCl=CH2	cyclo-C6H11	C2H5
A-1039	CH2CH=CCl2	cyclo-C6H11	C2H5
A-1040	CH2CH=CHCF3	cyclo-C6H11	C2H5
A-1041	CH(CH3)CH=CH2	cyclo-C6H11	C2H5
A-1042	CH2CCCH3	cyclo-C6H11	C2H5
A-1043	CH2CF3	cyclo-C6H11	C2H5
A-1044	CH2CH2OCH3	cyclo-C6H11	C2H5
A-1045	CH2CH2OC2H5	cyclo-C6H11	C2H5
A-1046	CH2CH2CH2OCH3	cyclo-C6H11	C2H5
A-1047	CH2CH2CH2OC2H5	cyclo-C6H11	C2H5
A-1048	CH2CH(OCH3)2	cyclo-C6H11	C2H5
A-1049	CH2CO2CH3	cyclo-C6H11	C2H5
A-1050	CH2CO2C2H5	cyclo-C6H11	C2H5
A-1051	CH(CH3)CO2CH3	cyclo-C6H11	C2H5
A-1052	CH(CH3)CO2C2H5	cyclo-C6H11	C2H5
A-1053	C(CH3)2CO2CH3	cyclo-C6H11	C2H5
A-1054	C(CH3)2CO2C2H5	cyclo-C6H11	C2H5
A-1055	CH2Ph	cyclo-C6H11	C2H5
A-1056	CH2(2-Cl-Ph)	cyclo-C6H11	C2H5
A-1057	CH2(3-Cl-Ph)	cyclo-C6H11	C2H5
A-1058	CH2(4-Cl-Ph)	cyclo-C6H11	C2H5
A-1059	CH2(2-CF3-Ph)	cyclo-C6H11	C2H5
A-1060	CH2(3-CF3-Ph)	cyclo-C6H11	C2H5
A-1061	CH2(4-CF3-Ph)	cyclo-C6H11	C2H5
A-1062	CH(CH3)Ph	cyclo-C6H11	C2H5
A-1063	CH3	(CH2)4	
A-1064	C2H5	(CH2)4	
A-1065	n-C3H7	(CH2)4	
A-1066	i-C3H7	(CH2)4	
A-1067	n-C4H9	(CH2)4	
A-1068	s-C4H9	(CH2)4	
A-1069	n-C5H11	(CH2)4	
A-1070	n-C6H13	(CH2)4	
A-1071	CH2CH=CH2	(CH2)4	
A-1072	CH2C(CH3)=CH2	(CH2)4	
A-1073	CH2C(CH3)=CHCH3	(CH2)4	
A-1074	CH2CH=C(CH3)2	(CH2)4	
A-1075	CH2CCl=CH2	(CH2)4	
A-1076	CH2CH=CCl2	(CH2)4	
A-1077	CH2CH=CHCF3	(CH2)4	
A-1078	CH(CH3)CH=CH2	(CH2)4	

Compound	R ¹	R ²	R ³
A-1079	CH ₂ CCCH ₃		(CH ₂) ₄
A-1080	CH ₂ CF ₃		(CH ₂) ₄
A-1081	CH ₂ CH ₂ OCH ₃		(CH ₂) ₄
A-1082	CH ₂ CH ₂ OC ₂ H ₅		(CH ₂) ₄
A-1083	CH ₂ CH ₂ CH ₂ OCH ₃		(CH ₂) ₄
A-1084	CH ₂ CH ₂ CH ₂ OC ₂ H ₅		(CH ₂) ₄
A-1085	CH ₂ CH(OCH ₃) ₂		(CH ₂) ₄
A-1086	CH ₂ CO ₂ CH ₃		(CH ₂) ₄
A-1087	CH ₂ CO ₂ C ₂ H ₅		(CH ₂) ₄
A-1088	CH(CH ₃)CO ₂ CH ₃		(CH ₂) ₄
A-1089	CH(CH ₃)CO ₂ C ₂ H ₅		(CH ₂) ₄
A-1090	C(CH ₃) ₂ CO ₂ CH ₃		(CH ₂) ₄
A-1091	C(CH ₃) ₂ CO ₂ C ₂ H ₅		(CH ₂) ₄
A-1092	CH ₂ Ph		(CH ₂) ₄
A-1093	CH ₂ (2-Cl-Ph)		(CH ₂) ₄
A-1094	CH ₂ (3-Cl-Ph)		(CH ₂) ₄
A-1095	CH ₂ (4-Cl-Ph)		(CH ₂) ₄
A-1096	CH ₂ (2-CF ₃ -Ph)		(CH ₂) ₄
A-1097	CH ₂ (3-CF ₃ -Ph)		(CH ₂) ₄
A-1098	CH ₂ (4-CF ₃ -Ph)		(CH ₂) ₄
A-1099	CH(CH ₃)Ph		(CH ₂) ₄
A-1100	CH ₃		(CH ₂) ₅
A-1101	C ₂ H ₅		(CH ₂) ₅
A-1102	n-C ₃ H ₇		(CH ₂) ₅
A-1103	i-C ₃ H ₇		(CH ₂) ₅
A-1104	n-C ₄ H ₉		(CH ₂) ₅
A-1105	s-C ₄ H ₉		(CH ₂) ₅
A-1106	n-C ₅ H ₁₁		(CH ₂) ₅
A-1107	n-C ₆ H ₁₃		(CH ₂) ₅
A-1108	CH ₂ CH=CH ₂		(CH ₂) ₅
A-1109	CH ₂ C(CH ₃)=CH ₂		(CH ₂) ₅
A-1110	CH ₂ C(CH ₃)=CHCH ₃		(CH ₂) ₅
A-1111	CH ₂ CH=C(CH ₃) ₂		(CH ₂) ₅
A-1112	CH ₂ CCl=CH ₂		(CH ₂) ₅
A-1113	CH ₂ CH=CCl ₂		(CH ₂) ₅
A-1114	CH ₂ CH=CHCF ₃		(CH ₂) ₅
A-1115	CH(CH ₃)CH=CH ₂		(CH ₂) ₅
A-1116	CH ₂ CCCH ₃		(CH ₂) ₅
A-1117	CH ₂ CF ₃		(CH ₂) ₅
A-1118	CH ₂ CH ₂ OCH ₃		(CH ₂) ₅
A-1119	CH ₂ CH ₂ OC ₂ H ₅		(CH ₂) ₅
A-1120	CH ₂ CH ₂ CH ₂ OCH ₃		(CH ₂) ₅
A-1121	CH ₂ CH ₂ CH ₂ OC ₂ H ₅		(CH ₂) ₅

Compound	R ¹	R ²	R ³
A-1122	CH2CH(OCH ₃) ₂		(CH ₂) ₅
A-1123	CH ₂ CO ₂ CH ₃		(CH ₂) ₅
A-1124	CH ₂ CO ₂ C ₂ H ₅		(CH ₂) ₅
A-1125	CH(CH ₃)CO ₂ CH ₃		(CH ₂) ₅
A-1126	CH(CH ₃)CO ₂ C ₂ H ₅		(CH ₂) ₅
A-1127	C(CH ₃) ₂ CO ₂ CH ₃		(CH ₂) ₅
A-1128	C(CH ₃) ₂ CO ₂ C ₂ H ₅		(CH ₂) ₅
A-1129	CH ₂ Ph		(CH ₂) ₅
A-1130	CH ₂ (2-Cl-Ph)		(CH ₂) ₅
A-1131	CH ₂ (3-Cl-Ph)		(CH ₂) ₅
A-1132	CH ₂ (4-Cl-Ph)		(CH ₂) ₅
A-1133	CH ₂ (2-CF ₃ -Ph)		(CH ₂) ₅
A-1134	CH ₂ (3-CF ₃ -Ph)		(CH ₂) ₅
A-1135	CH ₂ (4-CF ₃ -Ph)		(CH ₂) ₅
A-1136	CH(CH ₃)Ph		(CH ₂) ₅
A-1137	CH ₃	CH ₂ CH ₂ OCH ₂ CH ₂	
A-1138	C ₂ H ₅	CH ₂ CH ₂ OCH ₂ CH ₂	
A-1139	n-C ₃ H ₇	CH ₂ CH ₂ OCH ₂ CH ₂	
A-1140	i-C ₃ H ₇	CH ₂ CH ₂ OCH ₂ CH ₂	
A-1141	n-C ₄ H ₉	CH ₂ CH ₂ OCH ₂ CH ₂	
A-1142	s-C ₄ H ₉	CH ₂ CH ₂ OCH ₂ CH ₂	
A-1143	n-C ₅ H ₁₁	CH ₂ CH ₂ OCH ₂ CH ₂	
A-1144	n-C ₆ H ₁₃	CH ₂ CH ₂ OCH ₂ CH ₂	
A-1145	CH ₂ CH=CH ₂	CH ₂ CH ₂ OCH ₂ CH ₂	
A-1146	CH ₂ C(CH ₃)=CH ₂	CH ₂ CH ₂ OCH ₂ CH ₂	
A-1147	CH ₂ C(CH ₃)=CHCH ₃	CH ₂ CH ₂ OCH ₂ CH ₂	
A-1148	CH ₂ CH=C(CH ₃) ₂	CH ₂ CH ₂ OCH ₂ CH ₂	
A-1149	CH ₂ CCl=CH ₂	CH ₂ CH ₂ OCH ₂ CH ₂	
A-1150	CH ₂ CH=CCl ₂	CH ₂ CH ₂ OCH ₂ CH ₂	
A-1151	CH ₂ CH=CHCF ₃	CH ₂ CH ₂ OCH ₂ CH ₂	
A-1152	CH(CH ₃)CH=CH ₂	CH ₂ CH ₂ OCH ₂ CH ₂	
A-1153	CH ₂ CCCH ₃	CH ₂ CH ₂ OCH ₂ CH ₂	
A-1154	CH ₂ CF ₃	CH ₂ CH ₂ OCH ₂ CH ₂	
A-1155	CH ₂ CH ₂ OCH ₃	CH ₂ CH ₂ OCH ₂ CH ₂	
A-1156	CH ₂ CH ₂ OC ₂ H ₅	CH ₂ CH ₂ OCH ₂ CH ₂	
A-1157	CH ₂ CH ₂ CH ₂ OCH ₃	CH ₂ CH ₂ OCH ₂ CH ₂	
A-1158	CH ₂ CH ₂ CH ₂ OC ₂ H ₅	CH ₂ CH ₂ OCH ₂ CH ₂	
A-1159	CH ₂ CH(OCH ₃) ₂	CH ₂ CH ₂ OCH ₂ CH ₂	
A-1160	CH ₂ CO ₂ CH ₃	CH ₂ CH ₂ OCH ₂ CH ₂	
A-1161	CH ₂ CO ₂ C ₂ H ₅	CH ₂ CH ₂ OCH ₂ CH ₂	
A-1162	CH(CH ₃)CO ₂ CH ₃	CH ₂ CH ₂ OCH ₂ CH ₂	
A-1163	CH(CH ₃)CO ₂ C ₂ H ₅	CH ₂ CH ₂ OCH ₂ CH ₂	
A-1164	C(CH ₃) ₂ CO ₂ CH ₃	CH ₂ CH ₂ OCH ₂ CH ₂	

Compound	R ¹	R ²	R ³
A-1165	C(CH ₃) ₂ CO ₂ C ₂ H ₅	CH ₂ CH ₂ OCH ₂ CH ₂	
A-1166	CH ₂ Ph	CH ₂ CH ₂ OCH ₂ CH ₂	
A-1167	CH ₂ (2-Cl-Ph)	CH ₂ CH ₂ OCH ₂ CH ₂	
A-1168	CH ₂ (3-Cl-Ph)	CH ₂ CH ₂ OCH ₂ CH ₂	
A-1169	CH ₂ (4-Cl-Ph)	CH ₂ CH ₂ OCH ₂ CH ₂	
A-1170	CH ₂ (2-CF ₃ -Ph)	CH ₂ CH ₂ OCH ₂ CH ₂	
A-1171	CH ₂ (3-CF ₃ -Ph)	CH ₂ CH ₂ OCH ₂ CH ₂	
A-1172	CH ₂ (4-CF ₃ -Ph)	CH ₂ CH ₂ OCH ₂ CH ₂	
A-1173	CH(CH ₃)Ph	CH ₂ CH ₂ OCH ₂ CH ₂	
A-1174	CH ₃	CH ₂ CH ₂ SCH ₂ CH ₂	
A-1175	C ₂ H ₅	CH ₂ CH ₂ SCH ₂ CH ₂	
A-1176	n-C ₃ H ₇	CH ₂ CH ₂ SCH ₂ CH ₂	
A-1177	i-C ₃ H ₇	CH ₂ CH ₂ SCH ₂ CH ₂	
A-1178	n-C ₄ H ₉	CH ₂ CH ₂ SCH ₂ CH ₂	
A-1179	s-C ₄ H ₉	CH ₂ CH ₂ SCH ₂ CH ₂	
A-1180	n-C ₅ H ₁₁	CH ₂ CH ₂ SCH ₂ CH ₂	
A-1181	n-C ₆ H ₁₃	CH ₂ CH ₂ SCH ₂ CH ₂	
A-1182	CH ₂ CH=CH ₂	CH ₂ CH ₂ SCH ₂ CH ₂	
A-1183	CH ₂ C(CH ₃)=CH ₂	CH ₂ CH ₂ SCH ₂ CH ₂	
A-1184	CH ₂ C(CH ₃)=CHCH ₃	CH ₂ CH ₂ SCH ₂ CH ₂	
A-1185	CH ₂ CH=C(CH ₃) ₂	CH ₂ CH ₂ SCH ₂ CH ₂	
A-1186	CH ₂ CCl=CH ₂	CH ₂ CH ₂ SCH ₂ CH ₂	
A-1187	CH ₂ CH=CCl ₂	CH ₂ CH ₂ SCH ₂ CH ₂	
A-1188	CH ₂ CH=CHCF ₃	CH ₂ CH ₂ SCH ₂ CH ₂	
A-1189	CH(CH ₃)CH=CH ₂	CH ₂ CH ₂ SCH ₂ CH ₂	
A-1190	CH ₂ CCCH ₃	CH ₂ CH ₂ SCH ₂ CH ₂	
A-1191	CH ₂ CF ₃	CH ₂ CH ₂ SCH ₂ CH ₂	
A-1192	CH ₂ CH ₂ OCH ₃	CH ₂ CH ₂ SCH ₂ CH ₂	
A-1193	CH ₂ CH ₂ OC ₂ H ₅	CH ₂ CH ₂ SCH ₂ CH ₂	
A-1194	CH ₂ CH ₂ CH ₂ OCH ₃	CH ₂ CH ₂ SCH ₂ CH ₂	
A-1195	CH ₂ CH ₂ CH ₂ OC ₂ H ₅	CH ₂ CH ₂ SCH ₂ CH ₂	
A-1196	CH ₂ CH(OCH ₃) ₂	CH ₂ CH ₂ SCH ₂ CH ₂	
A-1197	CH ₂ CO ₂ CH ₃	CH ₂ CH ₂ SCH ₂ CH ₂	
A-1198	CH ₂ CO ₂ C ₂ H ₅	CH ₂ CH ₂ SCH ₂ CH ₂	
A-1199	CH(CH ₃)CO ₂ CH ₃	CH ₂ CH ₂ SCH ₂ CH ₂	
A-1200	CH(CH ₃)CO ₂ C ₂ H ₅	CH ₂ CH ₂ SCH ₂ CH ₂	
A-1201	C(CH ₃) ₂ CO ₂ CH ₃	CH ₂ CH ₂ SCH ₂ CH ₂	
A-1202	C(CH ₃) ₂ CO ₂ C ₂ H ₅	CH ₂ CH ₂ SCH ₂ CH ₂	
A-1203	CH ₂ Ph	CH ₂ CH ₂ SCH ₂ CH ₂	
A-1204	CH ₂ (2-Cl-Ph)	CH ₂ CH ₂ SCH ₂ CH ₂	
A-1205	CH ₂ (3-Cl-Ph)	CH ₂ CH ₂ SCH ₂ CH ₂	
A-1206	CH ₂ (4-Cl-Ph)	CH ₂ CH ₂ SCH ₂ CH ₂	
A-1207	CH ₂ (2-CF ₃ -Ph)	CH ₂ CH ₂ SCH ₂ CH ₂	

Compound	R ¹	R ²	R ³
A-1208	CH2(3-CF ₃ -Ph)	CH2CH ₂ SCH ₂ CH ₂	
A-1209	CH2(4-CF ₃ -Ph)	CH2CH ₂ SCH ₂ CH ₂	
A-1210	CH(CH ₃)Ph	CH2CH ₂ SCH ₂ CH ₂	
A-1211	n-C ₃ H ₇	OCH ₃	H
A-1212	i-C ₃ H ₇	OCH ₃	H
A-1213	CH ₂ CH=CH ₂	OCH ₃	H
A-1214	CH ₂ C(CH ₃)=CH ₂	OCH ₃	H
A-1215	CH ₂ C(CH ₃)=CHCH ₃	OCH ₃	H
A-1216	CH ₂ CH=C(CH ₃) ₂	OCH ₃	H
A-1217	CH ₂ Ph	OCH ₃	H
A-1218	CH2(3-CF ₃ -Ph)	OCH ₃	H
A-1219	n-C ₃ H ₇	OC ₂ H ₅	H
A-1220	i-C ₃ H ₇	OC ₂ H ₅	H
A-1221	CH ₂ CH=CH ₂	OC ₂ H ₅	H
A-1222	CH ₂ C(CH ₃)=CH ₂	OC ₂ H ₅	H
A-1223	CH ₂ C(CH ₃)=CHCH ₃	OC ₂ H ₅	H
A-1224	CH ₂ CH=C(CH ₃) ₂	OC ₂ H ₅	H
A-1225	CH ₂ Ph	OC ₂ H ₅	H
A-1226	CH2(3-CF ₃ -Ph)	OC ₂ H ₅	H
A-1227	n-C ₃ H ₇	O(i-C ₃ H ₇)	H
A-1228	i-C ₃ H ₇	O(i-C ₃ H ₇)	H
A-1229	CH ₂ CH=CH ₂	O(i-C ₃ H ₇)	H
A-1230	CH ₂ C(CH ₃)=CH ₂	O(i-C ₃ H ₇)	H
A-1231	CH ₂ C(CH ₃)=CHCH ₃	O(i-C ₃ H ₇)	H
A-1232	CH ₂ CH=C(CH ₃) ₂	O(i-C ₃ H ₇)	H
A-1233	CH ₂ Ph	O(i-C ₃ H ₇)	H
A-1234	CH2(3-CF ₃ -Ph)	O(i-C ₃ H ₇)	H
A-1235	n-C ₃ H ₇	O(t-C ₄ H ₉)	H
A-1236	i-C ₃ H ₇	O(t-C ₄ H ₉)	H
A-1237	CH ₂ CH=CH ₂	O(t-C ₄ H ₉)	H
A-1238	CH ₂ C(CH ₃)=CH ₂	O(t-C ₄ H ₉)	H
A-1239	CH ₂ C(CH ₃)=CHCH ₃	O(t-C ₄ H ₉)	H
A-1240	CH ₂ CH=C(CH ₃) ₂	O(t-C ₄ H ₉)	H
A-1241	CH ₂ Ph	O(t-C ₄ H ₉)	H
A-1242	CH2(3-CF ₃ -Ph)	O(t-C ₄ H ₉)	H
A-1243	n-C ₃ H ₇	OCH ₃	CH ₃
A-1244	i-C ₃ H ₇	OCH ₃	CH ₃
A-1245	CH ₂ CH=CH ₂	OCH ₃	CH ₃
A-1246	CH ₂ C(CH ₃)=CH ₂	OCH ₃	CH ₃
A-1247	CH ₂ C(CH ₃)=CHCH ₃	OCH ₃	CH ₃
A-1248	CH ₂ CH=C(CH ₃) ₂	OCH ₃	CH ₃
A-1249	CH ₂ CO ₂ CH ₃	OCH ₃	CH ₃
A-1250	CH(CH ₃)CO ₂ CH ₃	OCH ₃	CH ₃

Compound	R ¹	R ²	R ³
A-1251	C(CH ₃) ₂ CO ₂ CH ₃	OCH ₃	CH ₃
A-1252	CH ₂ Ph	OCH ₃	CH ₃
A-1253	CH ₂ (3-CF ₃ -Ph)	OCH ₃	CH ₃
A-1254	n-C ₃ H ₇	OCH ₂ Ph	H
A-1255	i-C ₃ H ₇	OCH ₂ Ph	H
A-1256	CH ₂ CH=CH ₂	OCH ₂ Ph	H
A-1257	CH ₂ C(CH ₃)=CH ₂	OCH ₂ Ph	H
A-1258	CH ₂ C(CH ₃)=CHCH ₃	OCH ₂ Ph	H
A-1259	CH ₂ CH=C(CH ₃) ₂	OCH ₂ Ph	H
A-1260	CH ₂ CO ₂ CH ₃	OCH ₂ Ph	H
A-1261	CH(CH ₃)CO ₂ CH ₃	OCH ₂ Ph	H
A-1262	C(CH ₃) ₂ CO ₂ CH ₃	OCH ₂ Ph	H
A-1263	CH ₂ Ph	OCH ₂ Ph	H
A-1264	CH ₂ (3-CF ₃ -Ph)	OCH ₂ Ph	H
A-1265	n-C ₃ H ₇	Ph	H
A-1266	i-C ₃ H ₇	Ph	H
A-1267	CH ₂ CH=CH ₂	Ph	H
A-1268	CH ₂ C(CH ₃)=CH ₂	Ph	H
A-1269	CH ₂ C(CH ₃)=CHCH ₃	Ph	H
A-1270	CH ₂ CH=C(CH ₃) ₂	Ph	H
A-1271	CH ₂ Ph	Ph	H
A-1272	CH ₂ (3-CF ₃ -Ph)	Ph	H
A-1273	n-C ₃ H ₇	4-Cl-Ph	H
A-1274	i-C ₃ H ₇	4-Cl-Ph	H
A-1275	CH ₂ CH=CH ₂	4-Cl-Ph	H
A-1276	CH ₂ C(CH ₃)=CH ₂	4-Cl-Ph	H
A-1277	CH ₂ C(CH ₃)=CHCH ₃	4-Cl-Ph	H
A-1278	CH ₂ CH=C(CH ₃) ₂	4-Cl-Ph	H
A-1279	CH ₂ Ph	4-Cl-Ph	H
A-1280	CH ₂ (3-CF ₃ -Ph)	4-Cl-Ph	H
A-1281	n-C ₃ H ₇	4-CH ₃ O-Ph	H
A-1282	i-C ₃ H ₇	4-CH ₃ O-Ph	H
A-1283	CH ₂ CH=CH ₂	4-CH ₃ O-Ph	H
A-1284	CH ₂ C(CH ₃)=CH ₂	4-CH ₃ O-Ph	H
A-1285	CH ₂ C(CH ₃)=CHCH ₃	4-CH ₃ O-Ph	H
A-1286	CH ₂ CH=C(CH ₃) ₂	4-CH ₃ O-Ph	H
A-1287	CH ₂ Ph	4-CH ₃ O-Ph	H
A-1288	CH ₂ (3-CF ₃ -Ph)	4-CH ₃ O-Ph	H
A-1289	n-C ₃ H ₇	4-CF ₃ CH ₂ O-Ph	H
A-1290	i-C ₃ H ₇	4-CF ₃ CH ₂ O-Ph	H
A-1291	CH ₂ CH=CH ₂	4-CF ₃ CH ₂ O-Ph	H
A-1292	CH ₂ C(CH ₃)=CH ₂	4-CF ₃ CH ₂ O-Ph	H
A-1293	CH ₂ C(CH ₃)=CHCH ₃	4-CF ₃ CH ₂ O-Ph	H

Compound	R ¹	R ²	R ³
A-1294	CH ₂ CH=C(CH ₃) ₂	4-CF ₃ CH ₂ O-Ph	H
A-1295	CH ₂ Ph	4-CF ₃ CH ₂ O-Ph	H
A-1296	CH ₂ (3-CF ₃ -Ph)	4-CF ₃ CH ₂ O-Ph	H
A-1297	n-C ₃ H ₇	4-PhO-Ph	H
A-1298	i-C ₃ H ₇	4-PhO-Ph	H
A-1299	CH ₂ CH=CH ₂	4-PhO-Ph	H
A-1300	CH ₂ C(CH ₃)=CH ₂	4-PhO-Ph	H
A-1301	CH ₂ C(CH ₃)=CHCH ₃	4-PhO-Ph	H
A-1302	CH ₂ CH=C(CH ₃) ₂	4-PhO-Ph	H
A-1303	CH ₂ Ph	4-PhO-Ph	H
A-1304	CH ₂ (3-CF ₃ -Ph)	4-PhO-Ph	H
A-1305	n-C ₃ H ₇	4-(4-Cl-Ph)O-Ph	H
A-1306	i-C ₃ H ₇	4-(4-Cl-Ph)O-Ph	H
A-1307	CH ₂ CH=CH ₂	4-(4-Cl-Ph)O-Ph	H
A-1308	CH ₂ C(CH ₃)=CH ₂	4-(4-Cl-Ph)O-Ph	H
A-1309	CH ₂ C(CH ₃)=CHCH ₃	4-(4-Cl-Ph)O-Ph	H
A-1310	CH ₂ CH=C(CH ₃) ₂	4-(4-Cl-Ph)O-Ph	H
A-1311	CH ₂ Ph	4-(4-Cl-Ph)O-Ph	H
A-1312	CH ₂ (3-CF ₃ -Ph)	4-(4-Cl-Ph)O-Ph	H
A-1313	n-C ₃ H ₇	4-(4-CF ₃ -Ph)O-Ph	H
A-1314	i-C ₃ H ₇	4-(4-CF ₃ -Ph)O-Ph	H
A-1315	CH ₂ CH=CH ₂	4-(4-CF ₃ -Ph)O-Ph	H
A-1316	CH ₂ C(CH ₃)=CH ₂	4-(4-CF ₃ -Ph)O-Ph	H
A-1317	CH ₂ C(CH ₃)=CHCH ₃	4-(4-CF ₃ -Ph)O-Ph	H
A-1318	CH ₂ CH=C(CH ₃) ₂	4-(4-CF ₃ -Ph)O-Ph	H
A-1319	CH ₂ Ph	4-(4-CF ₃ -Ph)O-Ph	H
A-1320	CH ₂ (3-CF ₃ -Ph)	4-(4-CF ₃ -Ph)O-Ph	H
A-1321	CH ₃	Ph	CH ₃
A-1322	C ₂ H ₅	Ph	CH ₃
A-1323	n-C ₃ H ₇	Ph	CH ₃
A-1324	i-C ₃ H ₇	Ph	CH ₃
A-1325	CH ₂ CH=CH ₂	Ph	CH ₃
A-1326	CH ₂ C(CH ₃)=CH ₂	Ph	CH ₃
A-1327	CH ₂ C(CH ₃)=CHCH ₃	Ph	CH ₃
A-1328	CH ₂ CH=C(CH ₃) ₂	Ph	CH ₃
A-1329	CH ₂ CO ₂ CH ₃	Ph	CH ₃
A-1330	CH(CH ₃)CO ₂ CH ₃	Ph	CH ₃
A-1331	C(CH ₃) ₂ CO ₂ CH ₃	Ph	CH ₃
A-1332	CH ₂ Ph	Ph	CH ₃
A-1333	CH ₂ (3-CF ₃ -Ph)	Ph	CH ₃
A-1334	n-C ₃ H ₇	Ph	C ₂ H ₅
A-1335	i-C ₃ H ₇	Ph	C ₂ H ₅
A-1336	CH ₂ CH=CH ₂	Ph	C ₂ H ₅

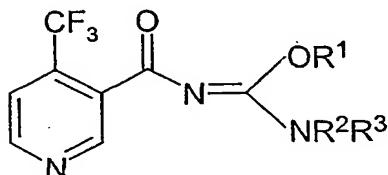
Compound	R ¹	R ²	R ³
A-1337	CH2C(CH3)=CH2	Ph	C2H5
A-1338	CH2C(CH3)=CHCH3	Ph	C2H5
A-1339	CH2CH=C(CH3)2	Ph	C2H5
A-1340	CH2CO2CH3	Ph	C2H5
A-1341	CH(CH3)CO2CH3	Ph	C2H5
A-1342	C(CH3)2CO2CH3	Ph	C2H5
A-1343	CH2Ph	Ph	C2H5
A-1344	CH2(3-CF3-Ph)	Ph	C2H5
A-1345	n-C3H7	Ph	i-C3H7
A-1346	i-C3H7	Ph	i-C3H7
A-1347	CH2CH=CH2	Ph	i-C3H7
A-1348	CH2C(CH3)=CH2	Ph	i-C3H7
A-1349	CH2C(CH3)=CHCH3	Ph	i-C3H7
A-1350	CH2CH=C(CH3)2	Ph	i-C3H7
A-1351	CH2CO2CH3	Ph	i-C3H7
A-1352	CH(CH3)CO2CH3	Ph	i-C3H7
A-1353	C(CH3)2CO2CH3	Ph	i-C3H7
A-1354	CH2Ph	Ph	i-C3H7
A-1355	CH2(3-CF3-Ph)	Ph	i-C3H7
A-1356	CH2CH=CH2	4-Cl-Ph	CH3
A-1357	CH2Ph	4-Cl-Ph	CH3
A-1358	CH2CH=CH2	4-CH3O-Ph	CH3
A-1359	CH2Ph	4-CH3O-Ph	CH3
A-1360	CH2CH=CH2	4-(4-Cl-Ph)O-Ph	CH3
A-1361	CH2Ph	4-(4-Cl-Ph)O-Ph	CH3
A-1362	CH2CH=CH2	4-(4-CF3-Ph)O-Ph	CH3
A-1363	CH2Ph	4-(4-CF3-Ph)O-Ph	CH3
A-1364	CH2CH=CH2	4-CF3-Ph	CH3
A-1365	CH2CH=CH2	4-CF3O-Ph	CH3
A-1366	CH2CH=CH2	4-CF3S-Ph	CH3
A-1367	CH2CH=CH2	4-CF3CH2O-Ph	CH3
A-1368	n-C3H7	2-thiazolyl	H
A-1369	i-C3H7	2-thiazolyl	H
A-1370	CH2CH=CH2	2-thiazolyl	H
A-1371	CH2C(CH3)=CH2	2-thiazolyl	H
A-1372	CH2C(CH3)=CHCH3	2-thiazolyl	H
A-1373	CH2CH=C(CH3)2	2-thiazolyl	H
A-1374	CH2CO2CH3	2-thiazolyl	H
A-1375	CH(CH3)CO2CH3	2-thiazolyl	H
A-1376	C(CH3)2CO2CH3	2-thiazolyl	H
A-1377	CH2Ph	2-thiazolyl	H
A-1378	CH2(3-CF3-Ph)	2-thiazolyl	H
A-1379	n-C3H7	1,2,3-thiadiazol-2yl	H

Compound	R ¹	R ²	R ³
A-1380	i-C ₃ H ₇	1,2,3-thiadiazol-2yl	H
A-1381	CH ₂ CH=CH ₂	1,2,3-thiadiazol-2yl	H
A-1382	CH ₂ C(CH ₃)=CH ₂	1,2,3-thiadiazol-2yl	H
A-1383	CH ₂ C(CH ₃)=CHCH ₃	1,2,3-thiadiazol-2yl	H
A-1384	CH ₂ CH=C(CH ₃) ₂	1,2,3-thiadiazol-2yl	H
A-1385	CH ₂ CO ₂ CH ₃	1,2,3-thiadiazol-2yl	H
A-1386	CH(CH ₃)CO ₂ CH ₃	1,2,3-thiadiazol-2yl	H
A-1387	C(CH ₃) ₂ CO ₂ CH ₃	1,2,3-thiadiazol-2yl	H
A-1388	CH ₂ Ph	1,2,3-thiadiazol-2yl	H
A-1389	CH ₂ (3-CF ₃ -Ph)	1,2,3-thiadiazol-2yl	H
A-1390	n-C ₃ H ₇	NH ₂	CH ₃
A-1391	i-C ₃ H ₇	NH ₂	CH ₃
A-1392	CH ₂ CH=CH ₂	NH ₂	CH ₃
A-1393	CH ₂ C(CH ₃)=CH ₂	NH ₂	CH ₃
A-1394	CH ₂ C(CH ₃)=CHCH ₃	NH ₂	CH ₃
A-1395	CH ₂ CH=C(CH ₃) ₂	NH ₂	CH ₃
A-1396	CH ₂ Ph	NH ₂	CH ₃
A-1397	CH ₂ (3-CF ₃ -Ph)	NH ₂	CH ₃
A-1398	n-C ₃ H ₇	NH ₂	i-C ₃ H ₇
A-1399	i-C ₃ H ₇	NH ₂	i-C ₃ H ₇
A-1400	CH ₂ CH=CH ₂	NH ₂	i-C ₃ H ₇
A-1401	CH ₂ C(CH ₃)=CH ₂	NH ₂	i-C ₃ H ₇
A-1402	CH ₂ C(CH ₃)=CHCH ₃	NH ₂	i-C ₃ H ₇
A-1403	CH ₂ CH=C(CH ₃) ₂	NH ₂	i-C ₃ H ₇
A-1404	CH ₂ Ph	NH ₂	i-C ₃ H ₇
A-1405	CH ₂ (3-CF ₃ -Ph)	NH ₂	i-C ₃ H ₇
A-1406	n-C ₃ H ₇	NH ₂	CH ₂ Ph
A-1407	i-C ₃ H ₇	NH ₂	CH ₂ Ph
A-1408	CH ₂ CH=CH ₂	NH ₂	CH ₂ Ph
A-1409	CH ₂ C(CH ₃)=CH ₂	NH ₂	CH ₂ Ph
A-1410	CH ₂ C(CH ₃)=CHCH ₃	NH ₂	CH ₂ Ph
A-1411	CH ₂ CH=C(CH ₃) ₂	NH ₂	CH ₂ Ph
A-1412	CH ₂ Ph	NH ₂	CH ₂ Ph
A-1413	CH ₂ (3-CF ₃ -Ph)	NH ₂	CH ₂ Ph
A-1414	n-C ₃ H ₇	NHCOCH ₃	CH ₃
A-1415	i-C ₃ H ₇	NHCOCH ₃	CH ₃
A-1416	CH ₂ CH=CH ₂	NHCOCH ₃	CH ₃
A-1417	CH ₂ C(CH ₃)=CH ₂	NHCOCH ₃	CH ₃
A-1418	CH ₂ C(CH ₃)=CHCH ₃	NHCOCH ₃	CH ₃
A-1419	CH ₂ CH=C(CH ₃) ₂	NHCOCH ₃	CH ₃
A-1420	CH ₂ Ph	NHCOCH ₃	CH ₃
A-1421	CH ₂ (3-CF ₃ -Ph)	NHCOCH ₃	CH ₃
A-1422	n-C ₃ H ₇	NHCOPh	CH ₃

Compound	R ¹	R ²	R ³
A-1423	i-C ₃ H ₇	NHCOPh	CH ₃
A-1424	CH ₂ CH=CH ₂	NHCOPh	CH ₃
A-1425	CH ₂ C(CH ₃)=CH ₂	NHCOPh	CH ₃
A-1426	CH ₂ C(CH ₃)=CHCH ₃	NHCOPh	CH ₃
A-1427	CH ₂ CH=C(CH ₃) ₂	NHCOPh	CH ₃
A-1428	CH ₂ Ph	NHCOPh	CH ₃
A-1429	CH ₂ (3-CF ₃ -Ph)	NHCOPh	CH ₃
A-1430	CH ₃	N=C(CH ₃) ₂	Ph
A-1431	i-C ₃ H ₇	N=C(CH ₃) ₂	Ph
A-1432	CH ₂ CH=CH ₂	N=C(CH ₃) ₂	Ph
A-1433	CH ₂ C(CH ₃)=CH ₂	N=C(CH ₃) ₂	Ph
A-1434	CH ₂ CCH	N=C(CH ₃) ₂	Ph
A-1435	CH ₂ Ph	N=C(CH ₃) ₂	Ph
A-1436	CH ₃	3-CF ₃ Ph	H
A-1437	CH ₂ CH=CH ₂	3-CF ₃ Ph	H
A-1438	CH ₂ Ph	3-CF ₃ Ph	H

Table 2

Compounds of formula (Ib):



(Ib)

Compound	R ¹	R ²	R ³
B-1	CH ₃	CH ₃	H
B-2	CH ₃	CH ₃	CH ₃
B-3	CH ₃	C ₂ H ₅	H
B-4	CH ₃	C ₂ H ₅	C ₂ H ₅
B-5	CH ₃	n-C ₃ H ₇	H
B-6	CH ₃	i-C ₃ H ₇	H
B-7	CH ₃	i-C ₃ H ₇	CH ₃
B-8	CH ₃	i-C ₃ H ₇	C ₂ H ₅
B-9	CH ₃	n-C ₄ H ₉	H
B-10	CH ₃	n-C ₄ H ₉	CH ₃
B-11	CH ₃	s-C ₄ H ₉	H
B-12	CH ₃	i-C ₄ H ₉	H
B-13	CH ₃	t-C ₄ H ₉	H
B-14	CH ₃	n-C ₅ H ₁₁	H
B-15	CH ₃	n-C ₆ H ₁₃	H

Compound	R ¹	R ²	R ³
B-16	CH3	CH2CH(C2H5)2	H
B-17	CH3	CH(CH3)CH2CH2CH(CH3)CH3	H
B-18	CH3	CH2CH=CH2	H
B-19	CH3	CH2CH=CH2	CH3
B-20	CH3	CH2C(CH3)=CH2	H
B-21	CH3	CH2C(CH3)=CHCH3	H
B-22	CH3	CH2CH=C(CH3)2	H
B-23	CH3	CH2CCl=CH2	H
B-24	CH3	CH2CH=CCl2	H
B-25	CH3	CH2CH=CHCF3	H
B-26	CH3	CH2CH=CHPh	H
B-27	CH3	CH(CH3)CH=CH2	H
B-28	CH3	CH2CCH	H
B-29	CH3	CH2CCCCH3	H
B-30	CH3	CH2CF3	H
B-31	CH3	CH2OCH3	H
B-32	CH3	CH2CH2OC2H5	H
B-33	CH3	CH2CH2CH2OCH3	H
B-34	CH3	CH2CH2OPh	H
B-35	CH3	CH(OCH3)C2H5	H
B-36	CH3	CH2CH(OCH3)2	H
B-37	CH3	CH2CH(OCH3)2	CH3
B-38	CH3	(CH2)5CN	H
B-39	CH3	CH2CH2CN	H
B-40	CH3	CH2CH2CN	CH3
B-41	CH3	cyclo-C3H5	H
B-42	CH3	cyclo-C6H11	H
B-43	CH3	cyclo-C6H11	CH3
B-44	CH3	CH2(cyclo-C3H5)	H
B-45	CH3	CH2(cyclo-C5H9)	H
B-46	CH3	CH2(cyclo-C6H11)	H
B-47	CH3	CH2Ph	H
B-48	CH3	CH2Ph	CH3
B-49	CH3	CH2Ph	i-C3H7
B-50	CH3	CH2(2-Cl-Ph)	H
B-51	CH3	CH2(3-Cl-Ph)	H
B-52	CH3	CH2(4-Cl-Ph)	H
B-53	CH3	CH2(2-CF3-Ph)	H
B-54	CH3	CH2(3-CF3-Ph)	H
B-55	CH3	CH2(4-CF3-Ph)	H
B-56	CH3	CH2(2-F-Ph)	H
B-57	CH3	CH2(3-F-Ph)	H

Compound	R ¹	R ²	R ³
B-58	CH3	CH2(4-F-Ph)	H
B-59	CH3	CH2(3-Me-Ph)	H
B-60	CH3	CH2(4-Me-Ph)	H
B-61	CH3	CH2(4-t-C4H9-Ph)	H
B-62	CH3	CH2(4-t-C4H9-Ph)	CH3
B-63	CH3	CH(CH3)Ph	H
B-64	CH3	CH(CH3)(2-Cl-Ph)	H
B-65	CH3	CH(CH3)(3-Cl-Ph)	H
B-66	CH3	CH(CH3)(4-Br-Ph)	H
B-67	CH3	CH(CH3)(4-Br-Ph)	H
B-68	CH3	CH2(2-thienyl)	H
B-69	CH3	CH2(2-pyridyl)	H
B-70	CH3	CH2CH2Ph	H
B-71	CH3	CH2CH2CH2CH2	
B-72	CH3	CH2CH2CH2CH2CH2	
B-73	CH3	CH2CH2CH(CO2C2H5)CH2CH2	
B-74	CH3	O(i-C3H7)	H
B-75	CH3	OCH2C(CH3)=CH2	H
B-76	CH3	O(2-tetrahydropyranyl)	H
B-77	CH3	OCH2(3,4-Cl2-Ph)	H
B-78	CH3	OCH2(2,4-Cl2-Ph)	H
B-79	CH3	OCH2(3-CF3-Ph)	H
B-80	CH3	OCH2(4-F-2-OCF3-Ph)	H
B-81	CH3	OCH2(2,5-(CF3)2-Ph)	H
B-82	CH3	(CH2)2N(CH3)2	H
B-83	CH3	(CH2)3N(CH3)2	H
B-84	CH3	(CH2)3(1-imidazolyl)	H
B-85	CH3	CH2(1-C2H5-2-pyrrolidinyl)	H
B-86	CH3	NH(2-CF3-Ph)	H
B-87	CH3	NH(4-Cl-Ph)	H
B-88	CH3	N(CH3)2	H
B-89	C2H5	CH3	H
B-90	C2H5	CH3	CH3
B-91	C2H5	C2H5	H
B-92	C2H5	C2H5	C2H5
B-93	C2H5	n-C3H7	H
B-94	C2H5	i-C3H7	H
B-95	C2H5	n-C4H9	H
B-96	C2H5	s-C4H9	H
B-97	C2H5	i-C4H9	H
B-98	C2H5	t-C4H9	H
B-99	C2H5	n-C5H11	H

Compound	R ¹	R ²	R ³
B-100	C ₂ H ₅	n-C ₆ H ₁₃	H
B-101	C ₂ H ₅	CH ₂ CH(C ₂ H ₅) ₂	H
B-102	C ₂ H ₅	CH(CH ₃)CH ₂ CH ₂ CH(CH ₃)CH ₃	H
B-103	C ₂ H ₅	CH ₂ CH=CH ₂	H
B-104	C ₂ H ₅	CH ₂ CH=CH ₂	CH ₃
B-105	C ₂ H ₅	CH ₂ C(CH ₃)=CH ₂	H
B-106	C ₂ H ₅	CH ₂ C(CH ₃)=CHCH ₃	H
B-107	C ₂ H ₅	CH ₂ CH=C(CH ₃) ₂	H
B-108	C ₂ H ₅	CH ₂ CCl=CH ₂	H
B-109	C ₂ H ₅	CH ₂ CH=CCl ₂	H
B-110	C ₂ H ₅	CH ₂ CH=CHCF ₃	H
B-111	C ₂ H ₅	CH ₂ CH=CHPh	H
B-112	C ₂ H ₅	CH(CH ₃)CH=CH ₂	H
B-113	C ₂ H ₅	CH ₂ CCH	H
B-114	C ₂ H ₅	CH ₂ CCH	CH ₃
B-115	C ₂ H ₅	CH ₂ CCCH ₃	H
B-116	C ₂ H ₅	CH ₂ CF ₃	H
B-117	C ₂ H ₅	CH ₂ CH ₂ OCH ₃	H
B-118	C ₂ H ₅	CH ₂ CH ₂ OC ₂ H ₅	H
B-119	C ₂ H ₅	CH ₂ CH ₂ CH ₂ OCH ₃	H
B-120	C ₂ H ₅	CH ₂ CH ₂ CH ₂ OC ₂ H ₅	H
B-121	C ₂ H ₅	CH(OCH ₃)C ₂ H ₅	H
B-122	C ₂ H ₅	CH ₂ CH(OCH ₃) ₂	H
B-123	C ₂ H ₅	CH ₂ CH(OCH ₃) ₂	CH ₃
B-124	C ₂ H ₅	(CH ₂) ₅ CN	H
B-125	C ₂ H ₅	cyclo-C ₃ H ₅	H
B-126	C ₂ H ₅	cyclo-C ₆ H ₁₁	H
B-127	C ₂ H ₅	CH ₂ (cyclo-C ₃ H ₅)	H
B-128	C ₂ H ₅	CH ₂ (cyclo-C ₅ H ₉)	H
B-129	C ₂ H ₅	CH ₂ (cyclo-C ₆ H ₁₁)	H
B-130	C ₂ H ₅	CH ₂ Ph	H
B-131	C ₂ H ₅	CH ₂ (2-Cl-Ph)	H
B-132	C ₂ H ₅	CH ₂ (3-Cl-Ph)	H
B-133	C ₂ H ₅	CH ₂ (4-Cl-Ph)	H
B-134	C ₂ H ₅	CH ₂ (2-CF ₃ -Ph)	H
B-135	C ₂ H ₅	CH ₂ (3-CF ₃ -Ph)	H
B-136	C ₂ H ₅	CH ₂ (4-CF ₃ -Ph)	H
B-137	C ₂ H ₅	CH ₂ (2-F-Ph)	H
B-138	C ₂ H ₅	CH ₂ (3-F-Ph)	H
B-139	C ₂ H ₅	CH ₂ (4-F-Ph)	H
B-140	C ₂ H ₅	CH ₂ (3-Me-Ph)	H
B-141	C ₂ H ₅	CH ₂ (4-Me-Ph)	H

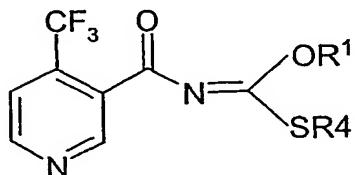
Compound	R ¹	R ²	R ³
B-142	C ₂ H ₅	CH(CH ₃)Ph	H
B-143	C ₂ H ₅	CH(CH ₃)(2-Cl-Ph)	H
B-144	C ₂ H ₅	CH(CH ₃)(3-Cl-Ph)	H
B-145	C ₂ H ₅	CH(CH ₃)(4-Cl-Ph)	H
B-146	C ₂ H ₅	CH(CH ₃)(2-CF ₃ -Ph)	H
B-147	C ₂ H ₅	CH(CH ₃)(3-CF ₃ -Ph)	H
B-148	C ₂ H ₅	CH(CH ₃)(4-CF ₃ -Ph)	H
B-149	C ₂ H ₅	CH ₂ CH ₂ Ph	H
B-150	C ₂ H ₅	CH ₂ (2-thienyl)	H
B-151	C ₂ H ₅	CH ₂ (2-furanyl)	H
B-152	C ₂ H ₅	OCH ₂ C(CH ₃)=CH ₂	H
B-153	C ₂ H ₅	O(2-tetrahydropyranyl)	H
B-154	C ₂ H ₅	OCH ₂ (3,4-Cl ₂ -Ph)	H
B-155	C ₂ H ₅	OCH ₂ (2,4-Cl ₂ -Ph)	H
B-156	C ₂ H ₅	OCH ₂ (3-CF ₃ -Ph)	H
B-157	C ₂ H ₅	OCH ₂ (4-F-2-CF ₃ -Ph)	H
B-158	C ₂ H ₅	OCH ₂ (2,5-(CF ₃) ₂ -Ph)	H
B-159	C ₂ H ₅	(CH ₂) ₂ N(CH ₃) ₂	H
B-160	C ₂ H ₅	(CH ₂) ₃ N(CH ₃) ₂	H
B-161	C ₂ H ₅	(CH ₂) ₃ (1-imidazolyl)	H
B-162	C ₂ H ₅	CH ₂ (1-C ₂ H ₅ -2-pyrrolidinyl)	H
B-163	C ₂ H ₅	NH(2-CF ₃ -Ph)	H
B-164	C ₂ H ₅	NH(4-Cl-Ph)	H
B-165	C ₂ H ₅	N(CH ₃) ₂	H
B-166	i-C ₃ H ₇	CH ₃	H
B-167	i-C ₃ H ₇	CH ₃	CH ₃
B-168	i-C ₃ H ₇	C ₂ H ₅	H
B-169	i-C ₃ H ₇	C ₂ H ₅	C ₂ H ₅
B-170	i-C ₃ H ₇	n-C ₃ H ₇	H
B-171	i-C ₃ H ₇	i-C ₃ H ₇	H
B-172	i-C ₃ H ₇	n-C ₄ H ₉	H
B-173	i-C ₃ H ₇	s-C ₄ H ₉	H
B-174	i-C ₃ H ₇	i-C ₄ H ₉	H
B-175	i-C ₃ H ₇	t-C ₄ H ₉	H
B-176	i-C ₃ H ₇	n-C ₅ H ₁₁	H
B-177	i-C ₃ H ₇	n-C ₆ H ₁₃	H
B-178	i-C ₃ H ₇	CH ₂ CH(C ₂ H ₅) ₂	H
B-179	i-C ₃ H ₇	CH(CH ₃)CH ₂ CH ₂ CH(CH ₃)CH ₃	H
B-180	i-C ₃ H ₇	CH ₂ CH=CH ₂	H
B-181	i-C ₃ H ₇	CH ₂ CH=CH ₂	CH ₃
B-182	i-C ₃ H ₇	CH ₂ C(CH ₃)=CH ₂	H
B-183	i-C ₃ H ₇	CH ₂ C(CH ₃)=CHCH ₃	H

Compound	R ¹	R ²	R ³
B-184	i-C ₃ H ₇	CH ₂ CH=C(CH ₃) ₂	H
B-185	i-C ₃ H ₇	CH ₂ CCl=CH ₂	H
B-186	i-C ₃ H ₇	CH ₂ CH=CCl ₂	H
B-187	i-C ₃ H ₇	CH ₂ CH=CHCF ₃	H
B-188	i-C ₃ H ₇	CH ₂ CH=CHPh	H
B-189	i-C ₃ H ₇	CH(CH ₃)CH=CH ₂	H
B-190	i-C ₃ H ₇	CH ₂ CCH	H
B-191	i-C ₃ H ₇	CH ₂ CCH	CH ₃
B-192	i-C ₃ H ₇	CH ₂ CCCH ₃	H
B-193	i-C ₃ H ₇	CH ₂ CF ₃	H
B-194	i-C ₃ H ₇	CH ₂ CH ₂ OCH ₃	H
B-195	i-C ₃ H ₇	CH ₂ CH ₂ O ₂ H ₅	H
B-196	i-C ₃ H ₇	CH ₂ CH ₂ CH ₂ OCH ₃	H
B-197	i-C ₃ H ₇	CH ₂ CH ₂ CH ₂ O ₂ H ₅	H
B-198	i-C ₃ H ₇	CH(OCH ₃)C ₂ H ₅	H
B-199	i-C ₃ H ₇	CH ₂ CH(OCH ₃) ₂	H
B-200	i-C ₃ H ₇	CH ₂ CH(OCH ₃) ₂	CH ₃
B-201	i-C ₃ H ₇	(CH ₂) ₅ CN	H
B-202	i-C ₃ H ₇	CH ₂ CH ₂ CN	H
B-203	i-C ₃ H ₇	CH ₂ CH ₂ CN	CH ₃
B-204	i-C ₃ H ₇	CH ₂ CH ₂ CN	C ₂ H ₅
B-205	i-C ₃ H ₇	cyclo-C ₃ H ₅	H
B-206	i-C ₃ H ₇	cyclo-C ₆ H ₁₁	H
B-207	i-C ₃ H ₇	CH ₂ (cyclo-C ₃ H ₅)	H
B-208	i-C ₃ H ₇	CH ₂ (cyclo-C ₅ H ₉)	H
B-209	i-C ₃ H ₇	CH ₂ (cyclo-C ₆ H ₁₁)	H
B-210	i-C ₃ H ₇	CH ₂ Ph	H
B-211	i-C ₃ H ₇	CH ₂ (2-Cl-Ph)	H
B-212	i-C ₃ H ₇	CH ₂ (3-Cl-Ph)	H
B-213	i-C ₃ H ₇	CH ₂ (4-Cl-Ph)	H
B-214	i-C ₃ H ₇	CH ₂ (2-CF ₃ -Ph)	H
B-215	i-C ₃ H ₇	CH ₂ (3-CF ₃ -Ph)	H
B-216	i-C ₃ H ₇	CH ₂ (4-CF ₃ -Ph)	H
B-217	i-C ₃ H ₇	CH ₂ (2-F-Ph)	H
B-218	i-C ₃ H ₇	CH ₂ (3-F-Ph)	H
B-219	i-C ₃ H ₇	CH ₂ (4-F-Ph)	H
B-220	i-C ₃ H ₇	CH ₂ (3-Me-Ph)	H
B-221	i-C ₃ H ₇	CH ₂ (4-Me-Ph)	H
B-222	i-C ₃ H ₇	CH(CH ₃)Ph	H
B-223	i-C ₃ H ₇	CH(CH ₃)(2-Cl-Ph)	H
B-224	i-C ₃ H ₇	CH(CH ₃)(3-Cl-Ph)	H
B-225	i-C ₃ H ₇	CH(CH ₃)(4-Cl-Ph)	H

Compound	R ¹	R ²	R ³
B-226	i-C ₃ H ₇	CH(CH ₃)(2-CF ₃ -Ph)	H
B-227	i-C ₃ H ₇	CH(CH ₃)(3-CF ₃ -Ph)	H
B-228	i-C ₃ H ₇	CH(CH ₃)(4-CF ₃ -Ph)	H
B-229	i-C ₃ H ₇	CH ₂ CH ₂ Ph	H
B-230	i-C ₃ H ₇	CH ₂ (2-thienyl)	H
B-231	i-C ₃ H ₇	CH ₂ (2-furanyl)	H
B-232	i-C ₃ H ₇	OCH ₂ C(CH ₃)=CH ₂	H
B-233	i-C ₃ H ₇	O(2-tetrahydropyranyl)	H
B-234	i-C ₃ H ₇	OCH ₂ (3,4-Cl ₂ -Ph)	H
B-235	i-C ₃ H ₇	OCH ₂ (2,4-Cl ₂ -Ph)	H
B-236	i-C ₃ H ₇	OCH ₂ (3-CF ₃ -Ph)	H
B-237	i-C ₃ H ₇	OCH ₂ (4-F-2-CF ₃ -Ph)	H
B-238	i-C ₃ H ₇	OCH ₂ ((CF ₃) ₂ -Ph)	H
B-239	i-C ₃ H ₇	(CH ₂) ₂ N(CH ₃) ₂	H
B-240	i-C ₃ H ₇	(CH ₂) ₃ N(CH ₃) ₂	H
B-241	i-C ₃ H ₇	(CH ₂) ₃ (1-imidazolyl)	H
B-242	i-C ₃ H ₇	CH ₂ (1-C ₂ H ₅ -2-pyrrolidinyl)	H
B-243	i-C ₃ H ₇	NH(2-CF ₃ -Ph)	H
B-244	i-C ₃ H ₇	NH(4-Cl-Ph)	H
B-245	i-C ₃ H ₇	N(CH ₃) ₂	H
B-246	CH ₃	NH(3-CF ₃ -Ph)	H
B-247	(CH ₂) ₃ SCH ₃	CH ₂ CH ₂ N(CH ₃) ₂	H
B-248	(CH ₂) ₃ SCH ₃	CH ₂ CCH	H
B-249	CH ₃	OCH ₂ (6-F-benzo-1,3-dioxan-4-yl)	H
B-250	CH ₃	OCH ₂ (4-F-2-CF ₃ -Ph)	H
B-251	CH ₃	OCH ₂ (2-OCF ₃ -Ph)	H
B-252	CH ₃	CH(CH ₃)(4-Cl-Ph)	H
B-253	CH ₃	CH ₂ CCH	CH ₃
B-254	CH ₃	CH ₂ (1,3-benzodioxolan-5-yl)	H
B-255	CH ₃	CH ₂ CH(C ₂ H ₅) ₂	H
B-256	CH ₃	CH ₂ (2-furyl)	H

Table 3

Compounds of formula (Ic):



(Ic)

Compound	R ⁴	R ¹
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Compound	R ⁴	R ¹
C-1	CH ₂ CH=CH ₂	CH ₃
C-2	CH ₂ C(CH ₃)=CH ₂	CH ₃
C-3	CH ₂ C(CH ₃)=CHCH ₃	CH ₃
C-4	CH ₂ CH=C(CH ₃) ₂	CH ₃
C-5	CH ₂ CCl=CH ₂	CH ₃
C-6	CH ₂ CH=CCl ₂	CH ₃
C-7	CH ₂ CH=CHCF ₃	CH ₃
C-8	CH ₂ CH=CHPh	CH ₃
C-9	CH(CH ₃)CH=CH ₂	CH ₃
C-10	CH ₂ CCH	CH ₃
C-11	CH ₂ CCCH ₃	CH ₃
C-12	CH ₂ CF ₃	CH ₃
C-13	CH ₂ CH ₂ OCH ₃	CH ₃
C-14	CH ₂ CH ₂ OC ₂ H ₅	CH ₃
C-15	CH ₂ CH ₂ CH ₂ OCH ₃	CH ₃
C-16	CH ₂ CH ₂ CH ₂ OC ₂ H ₅	CH ₃
C-17	CH ₂ CH(OCH ₃) ₂	CH ₃
C-18	CH ₂ CN	CH ₃
C-19	CH ₂ (cyclo-C ₃ H ₅)	CH ₃
C-20	CH ₂ (cyclo-C ₅ H ₉)	CH ₃
C-21	CH ₂ (cyclo-C ₆ H ₁₁)	CH ₃
C-22	CH ₂ Ph	CH ₃
C-23	CH ₂ (2-Cl-Ph)	CH ₃
C-24	CH ₂ (3-Cl-Ph)	CH ₃
C-25	CH ₂ (4-Cl-Ph)	CH ₃
C-26	CH ₂ (2-CF ₃ -Ph)	CH ₃
C-27	CH ₂ (3-CF ₃ -Ph)	CH ₃
C-28	CH ₂ (4-CF ₃ -Ph)	CH ₃
C-29	CH ₂ (2-F-Ph)	CH ₃
C-30	CH ₂ (3-F-Ph)	CH ₃
C-31	CH ₂ (4-F-Ph)	CH ₃
C-32	CH ₂ (2-OMe-Ph)	CH ₃
C-33	CH ₂ (3-OMe-Ph)	CH ₃
C-34	CH ₂ (4-OMe-Ph)	CH ₃
C-35	CH(CH ₃)Ph	CH ₃
C-36	CH(CH ₃)(2-Cl-Ph)	CH ₃
C-37	CH(CH ₃)(3-Cl-Ph)	CH ₃
C-38	CH(CH ₃)(4-Cl-Ph)	CH ₃
C-39	CH(CH ₃)(2-CF ₃ -Ph)	CH ₃
C-40	CH(CH ₃)(3-CF ₃ -Ph)	CH ₃
C-41	CH(CH ₃)(4-CF ₃ -Ph)	CH ₃
C-42	CH ₂ CH ₂ Ph	CH ₃

Compound	R ⁴	R ¹
C-43	CH2CH=CH2	C2H5
C-44	CH2C(CH3)=CH2	C2H5
C-45	CH2C(CH3)=CHCH3	C2H5
C-46	CH2CH=C(CH3)2	C2H5
C-47	CH2CCl=CH2	C2H5
C-48	CH2CH=CCl2	C2H5
C-49	CH2CH=CHCF3	C2H5
C-50	CH2CH=CHPh	C2H5
C-51	CH(CH3)CH=CH2	C2H5
C-52	CH2CCH	C2H5
C-53	CH2CCCH3	C2H5
C-54	CH2CF3	C2H5
C-55	CH2CH2OCH3	C2H5
C-56	CH2CH2OC2H5	C2H5
C-57	CH2CH2CH2OCH3	C2H5
C-58	CH2CH2CH2OC2H5	C2H5
C-59	CH2CH(OCH3)2	C2H5
C-60	CH2CN	C2H5
C-61	CH2(cyclo-C3H5)	C2H5
C-62	CH2(cyclo-C5H9)	C2H5
C-63	CH2(cyclo-C6H11)	C2H5
C-64	CH2Ph	C2H5
C-65	CH2(2-Cl-Ph)	C2H5
C-66	CH2(3-Cl-Ph)	C2H5
C-67	CH2(4-Cl-Ph)	C2H5
C-68	CH2(2-CF3-Ph)	C2H5
C-69	CH2(3-CF3-Ph)	C2H5
C-70	CH2(4-CF3-Ph)	C2H5
C-71	CH2(2-F-Ph)	C2H5
C-72	CH2(3-F-Ph)	C2H5
C-73	CH2(4-F-Ph)	C2H5
C-74	CH2(2-OMe-Ph)	C2H5
C-75	CH2(3-OMe-Ph)	C2H5
C-76	CH2(4-OMe-Ph)	C2H5
C-77	CH(CH3)Ph	C2H5
C-78	CH(CH3)(2-Cl-Ph)	C2H5
C-79	CH(CH3)(3-Cl-Ph)	C2H5
C-80	CH(CH3)(4-Cl-Ph)	C2H5
C-81	CH(CH3)(2-CF3-Ph)	C2H5
C-82	CH(CH3)(3-CF3-Ph)	C2H5
C-83	CH(CH3)(4-CF3-Ph)	C2H5
C-84	CH2CH2Ph	C2H5

Compound	R ⁴	R ¹
C-85	CH ₂ CH=CH ₂	n-C ₃ H ₇
C-86	CH ₂ C(CH ₃)=CH ₂	n-C ₃ H ₇
C-87	CH ₂ C(CH ₃)=CHCH ₃	n-C ₃ H ₇
C-88	CH ₂ CH=C(CH ₃) ₂	n-C ₃ H ₇
C-89	CH ₂ CCl=CH ₂	n-C ₃ H ₇
C-90	CH ₂ CH=CCl ₂	n-C ₃ H ₇
C-91	CH ₂ CH=CHCF ₃	n-C ₃ H ₇
C-92	CH ₂ CH=CHPh	n-C ₃ H ₇
C-93	CH(CH ₃)CH=CH ₂	n-C ₃ H ₇
C-94	CH ₂ CCH	n-C ₃ H ₇
C-95	CH ₂ CCCH ₃	n-C ₃ H ₇
C-96	CH ₂ CF ₃	n-C ₃ H ₇
C-97	CH ₂ CH ₂ OCH ₃	n-C ₃ H ₇
C-98	CH ₂ CH ₂ OC ₂ H ₅	n-C ₃ H ₇
C-99	CH ₂ CH ₂ CH ₂ OCH ₃	n-C ₃ H ₇
C-100	CH ₂ CH ₂ CH ₂ OC ₂ H ₅	n-C ₃ H ₇
C-101	CH ₂ CH(OCH ₃) ₂	n-C ₃ H ₇
C-102	CH ₂ CN	n-C ₃ H ₇
C-103	CH ₂ (cyclo-C ₃ H ₅)	n-C ₃ H ₇
C-104	CH ₂ (cyclo-C ₅ H ₉)	n-C ₃ H ₇
C-105	CH ₂ (cyclo-C ₆ H ₁₁)	n-C ₃ H ₇
C-106	CH ₂ Ph	n-C ₃ H ₇
C-107	CH ₂ (2-Cl-Ph)	n-C ₃ H ₇
C-108	CH ₂ (3-Cl-Ph)	n-C ₃ H ₇
C-109	CH ₂ (4-Cl-Ph)	n-C ₃ H ₇
C-110	CH ₂ (2-CF ₃ -Ph)	n-C ₃ H ₇
C-111	CH ₂ (3-CF ₃ -Ph)	n-C ₃ H ₇
C-112	CH ₂ (4-CF ₃ -Ph)	n-C ₃ H ₇
C-113	CH ₂ (2-F-Ph)	n-C ₃ H ₇
C-114	CH ₂ (3-F-Ph)	n-C ₃ H ₇
C-115	CH ₂ (4-F-Ph)	n-C ₃ H ₇
C-116	CH ₂ (2-OMe-Ph)	n-C ₃ H ₇
C-117	CH ₂ (3-OMe-Ph)	n-C ₃ H ₇
C-118	CH ₂ (4-OMe-Ph)	n-C ₃ H ₇
C-119	CH(CH ₃)Ph	n-C ₃ H ₇
C-120	CH(CH ₃)(2-Cl-Ph)	n-C ₃ H ₇
C-121	CH(CH ₃)(3-Cl-Ph)	n-C ₃ H ₇
C-122	CH(CH ₃)(4-Cl-Ph)	n-C ₃ H ₇
C-123	CH(CH ₃)(2-CF ₃ -Ph)	n-C ₃ H ₇
C-124	CH(CH ₃)(3-CF ₃ -Ph)	n-C ₃ H ₇
C-125	CH(CH ₃)(4-CF ₃ -Ph)	n-C ₃ H ₇
C-126	CH ₂ CH ₂ Ph	n-C ₃ H ₇

Compound	R ⁴	R ¹
C-127	CH ₂ CH=CH ₂	i-C ₃ H ₇
C-128	CH ₂ C(CH ₃)=CH ₂	i-C ₃ H ₇
C-129	CH ₂ C(CH ₃)=CHCH ₃	i-C ₃ H ₇
C-130	CH ₂ CH=C(CH ₃) ₂	i-C ₃ H ₇
C-131	CH ₂ CCl=CH ₂	i-C ₃ H ₇
C-132	CH ₂ CH=CCl ₂	i-C ₃ H ₇
C-133	CH ₂ CH=CHCF ₃	i-C ₃ H ₇
C-134	CH ₂ CH=CHPh	i-C ₃ H ₇
C-135	CH(CH ₃)CH=CH ₂	i-C ₃ H ₇
C-136	CH ₂ CCH	i-C ₃ H ₇
C-137	CH ₂ CCCH ₃	i-C ₃ H ₇
C-138	CH ₂ CF ₃	i-C ₃ H ₇
C-139	CH ₂ CH ₂ OCH ₃	i-C ₃ H ₇
C-140	CH ₂ CH ₂ OC ₂ H ₅	i-C ₃ H ₇
C-141	CH ₂ CH ₂ CH ₂ OCH ₃	i-C ₃ H ₇
C-142	CH ₂ CH ₂ CH ₂ OC ₂ H ₅	i-C ₃ H ₇
C-143	CH ₂ CH(OCH ₃) ₂	i-C ₃ H ₇
C-144	CH ₂ CN	i-C ₃ H ₇
C-145	CH ₂ (cyclo-C ₃ H ₅)	i-C ₃ H ₇
C-146	CH ₂ (cyclo-C ₅ H ₉)	i-C ₃ H ₇
C-147	CH ₂ (cyclo-C ₆ H ₁₁)	i-C ₃ H ₇
C-148	CH ₂ Ph	i-C ₃ H ₇
C-149	CH ₂ (2-Cl-Ph)	i-C ₃ H ₇
C-150	CH ₂ (3-Cl-Ph)	i-C ₃ H ₇
C-151	CH ₂ (4-Cl-Ph)	i-C ₃ H ₇
C-152	CH ₂ (2-CF ₃ -Ph)	i-C ₃ H ₇
C-153	CH ₂ (3-CF ₃ -Ph)	i-C ₃ H ₇
C-154	CH ₂ (4-CF ₃ -Ph)	i-C ₃ H ₇
C-155	CH ₂ (2-F-Ph)	i-C ₃ H ₇
C-156	CH ₂ (3-F-Ph)	i-C ₃ H ₇
C-157	CH ₂ (4-F-Ph)	i-C ₃ H ₇
C-158	CH ₂ (2-OMe-Ph)	i-C ₃ H ₇
C-159	CH ₂ (3-OMe-Ph)	i-C ₃ H ₇
C-160	CH ₂ (4-OMe-Ph)	i-C ₃ H ₇
C-161	CH(CH ₃)Ph	i-C ₃ H ₇
C-162	CH(CH ₃)(2-Cl-Ph)	i-C ₃ H ₇
C-163	CH(CH ₃)(3-Cl-Ph)	i-C ₃ H ₇
C-164	CH(CH ₃)(4-Cl-Ph)	i-C ₃ H ₇
C-165	CH(CH ₃)(2-CF ₃ -Ph)	i-C ₃ H ₇
C-166	CH(CH ₃)(3-CF ₃ -Ph)	i-C ₃ H ₇
C-167	CH(CH ₃)(4-CF ₃ -Ph)	i-C ₃ H ₇
C-168	CH ₂ CH ₂ Ph	i-C ₃ H ₇

Compound	R ⁴	R ¹
C-169	CH ₂ CH=CH ₂	n-C ₄ H ₉
C-170	CH ₂ C(CH ₃)=CH ₂	n-C ₄ H ₉
C-171	CH ₂ C(CH ₃)=CHCH ₃	n-C ₄ H ₉
C-172	CH ₂ CH=C(CH ₃) ₂	n-C ₄ H ₉
C-173	CH ₂ CCl=CH ₂	n-C ₄ H ₉
C-174	CH ₂ CH=CCl ₂	n-C ₄ H ₉
C-175	CH ₂ CH=CHCF ₃	n-C ₄ H ₉
C-176	CH ₂ CH=CHPh	n-C ₄ H ₉
C-177	CH(CH ₃)CH=CH ₂	n-C ₄ H ₉
C-178	CH ₂ CCH	n-C ₄ H ₉
C-179	CH ₂ CCCH ₃	n-C ₄ H ₉
C-180	CH ₂ CF ₃	n-C ₄ H ₉
C-181	CH ₂ CH ₂ OCH ₃	n-C ₄ H ₉
C-182	CH ₂ CH ₂ OC ₂ H ₅	n-C ₄ H ₉
C-183	CH ₂ CH ₂ CH ₂ OCH ₃	n-C ₄ H ₉
C-184	CH ₂ CH ₂ CH ₂ OC ₂ H ₅	n-C ₄ H ₉
C-185	CH ₂ CH(OCH ₃) ₂	n-C ₄ H ₉
C-186	CH ₂ CN	n-C ₄ H ₉
C-187	CH ₂ (cyclo-C ₃ H ₅)	n-C ₄ H ₉
C-188	CH ₂ (cyclo-C ₅ H ₉)	n-C ₄ H ₉
C-189	CH ₂ (cyclo-C ₆ H ₁₁)	n-C ₄ H ₉
C-190	CH ₂ Ph	n-C ₄ H ₉
C-191	CH ₂ (2-Cl-Ph)	n-C ₄ H ₉
C-192	CH ₂ (3-Cl-Ph)	n-C ₄ H ₉
C-193	CH ₂ (4-Cl-Ph)	n-C ₄ H ₉
C-194	CH ₂ (2-CF ₃ -Ph)	n-C ₄ H ₉
C-195	CH ₂ (3-CF ₃ -Ph)	n-C ₄ H ₉
C-196	CH ₂ (4-CF ₃ -Ph)	n-C ₄ H ₉
C-197	CH ₂ (2-F-Ph)	n-C ₄ H ₉
C-198	CH ₂ (3-F-Ph)	n-C ₄ H ₉
C-199	CH ₂ (4-F-Ph)	n-C ₄ H ₉
C-200	CH ₂ (2-OMe-Ph)	n-C ₄ H ₉
C-201	CH ₂ (3-OMe-Ph)	n-C ₄ H ₉
C-202	CH ₂ (4-OMe-Ph)	n-C ₄ H ₉
C-203	CH(CH ₃)Ph	n-C ₄ H ₉
C-204	CH(CH ₃)(2-Cl-Ph)	n-C ₄ H ₉
C-205	CH(CH ₃)(3-Cl-Ph)	n-C ₄ H ₉
C-206	CH(CH ₃)(4-Cl-Ph)	n-C ₄ H ₉
C-207	CH(CH ₃)(2-CF ₃ -Ph)	n-C ₄ H ₉
C-208	CH(CH ₃)(3-CF ₃ -Ph)	n-C ₄ H ₉
C-209	CH(CH ₃)(4-CF ₃ -Ph)	n-C ₄ H ₉
C-210	CH ₂ CH ₂ Ph	n-C ₄ H ₉

Compound	R ⁴	R ¹
C-211	CH ₂ CH=CH ₂	i-C ₄ H ₉
C-212	CH ₂ C(CH ₃)=CH ₂	i-C ₄ H ₉
C-213	CH ₂ C(CH ₃)=CHCH ₃	i-C ₄ H ₉
C-214	CH ₂ CH=C(CH ₃) ₂	i-C ₄ H ₉
C-215	CH ₂ CCl=CH ₂	i-C ₄ H ₉
C-216	CH ₂ CH=CCl ₂	i-C ₄ H ₉
C-217	CH ₂ CH=CHCF ₃	i-C ₄ H ₉
C-218	CH ₂ CH=CHPh	i-C ₄ H ₉
C-219	CH(CH ₃)CH=CH ₂	i-C ₄ H ₉
C-220	CH ₂ CCH	i-C ₄ H ₉
C-221	CH ₂ CCCH ₃	i-C ₄ H ₉
C-222	CH ₂ CF ₃	i-C ₄ H ₉
C-223	CH ₂ CH ₂ OCH ₃	i-C ₄ H ₉
C-224	CH ₂ CH ₂ OC ₂ H ₅	i-C ₄ H ₉
C-225	CH ₂ CH ₂ CH ₂ OCH ₃	i-C ₄ H ₉
C-226	CH ₂ CH ₂ CH ₂ OC ₂ H ₅	i-C ₄ H ₉
C-227	CH ₂ CH(OCH ₃) ₂	i-C ₄ H ₉
C-228	CH ₂ CN	i-C ₄ H ₉
C-229	CH ₂ (cyclo-C ₃ H ₅)	i-C ₄ H ₉
C-230	CH ₂ (cyclo-C ₅ H ₉)	i-C ₄ H ₉
C-231	CH ₂ (cyclo-C ₆ H ₁₁)	i-C ₄ H ₉
C-232	CH ₂ Ph	i-C ₄ H ₉
C-233	CH ₂ (2-Cl-Ph)	i-C ₄ H ₉
C-234	CH ₂ (3-Cl-Ph)	i-C ₄ H ₉
C-235	CH ₂ (4-Cl-Ph)	i-C ₄ H ₉
C-236	CH ₂ (2-CF ₃ -Ph)	i-C ₄ H ₉
C-237	CH ₂ (3-CF ₃ -Ph)	i-C ₄ H ₉
C-238	CH ₂ (4-CF ₃ -Ph)	i-C ₄ H ₉
C-239	CH ₂ (2-F-Ph)	i-C ₄ H ₉
C-240	CH ₂ (3-F-Ph)	i-C ₄ H ₉
C-241	CH ₂ (4-F-Ph)	i-C ₄ H ₉
C-242	CH ₂ (2-OMe-Ph)	i-C ₄ H ₉
C-243	CH ₂ (3-OMe-Ph)	i-C ₄ H ₉
C-244	CH ₂ (4-OMe-Ph)	i-C ₄ H ₉
C-245	CH(CH ₃)Ph	i-C ₄ H ₉
C-246	CH(CH ₃)(2-Cl-Ph)	i-C ₄ H ₉
C-247	CH(CH ₃)(3-Cl-Ph)	i-C ₄ H ₉
C-248	CH(CH ₃)(4-Cl-Ph)	i-C ₄ H ₉
C-249	CH(CH ₃)(2-CF ₃ -Ph)	i-C ₄ H ₉
C-250	CH(CH ₃)(3-CF ₃ -Ph)	i-C ₄ H ₉
C-251	CH(CH ₃)(4-CF ₃ -Ph)	i-C ₄ H ₉
C-252	CH ₂ CH ₂ Ph	i-C ₄ H ₉

Compound	R ⁴	R ¹
C-253	CH ₂ CH=CH ₂	sec-C ₄ H ₉
C-254	CH ₂ C(CH ₃)=CH ₂	sec-C ₄ H ₉
C-255	CH ₂ C(CH ₃)=CHCH ₃	sec-C ₄ H ₉
C-256	CH ₂ CH=C(CH ₃) ₂	sec-C ₄ H ₉
C-257	CH ₂ CCl=CH ₂	sec-C ₄ H ₉
C-258	CH ₂ CH=CCl ₂	sec-C ₄ H ₉
C-259	CH ₂ CH=CHCF ₃	sec-C ₄ H ₉
C-260	CH ₂ CH=CHPh	sec-C ₄ H ₉
C-261	CH(CH ₃)CH=CH ₂	sec-C ₄ H ₉
C-262	CH ₂ CCH	sec-C ₄ H ₉
C-263	CH ₂ CCCH ₃	sec-C ₄ H ₉
C-264	CH ₂ CF ₃	sec-C ₄ H ₉
C-265	CH ₂ CH ₂ OCH ₃	sec-C ₄ H ₉
C-266	CH ₂ CH ₂ OC ₂ H ₅	sec-C ₄ H ₉
C-267	CH ₂ CH ₂ CH ₂ OCH ₃	sec-C ₄ H ₉
C-268	CH ₂ CH ₂ CH ₂ OC ₂ H ₅	sec-C ₄ H ₉
C-269	CH ₂ CH(OCH ₃) ₂	sec-C ₄ H ₉
C-270	CH ₂ CN	sec-C ₄ H ₉
C-271	CH ₂ (cyclo-C ₃ H ₅)	sec-C ₄ H ₉
C-272	CH ₂ (cyclo-C ₅ H ₉)	sec-C ₄ H ₉
C-273	CH ₂ (cyclo-C ₆ H ₁₁)	sec-C ₄ H ₉
C-274	CH ₂ Ph	sec-C ₄ H ₉
C-275	CH ₂ (2-Cl-Ph)	sec-C ₄ H ₉
C-276	CH ₂ (3-Cl-Ph)	sec-C ₄ H ₉
C-277	CH ₂ (4-Cl-Ph)	sec-C ₄ H ₉
C-278	CH ₂ (2-CF ₃ -Ph)	sec-C ₄ H ₉
C-279	CH ₂ (3-CF ₃ -Ph)	sec-C ₄ H ₉
C-280	CH ₂ (4-CF ₃ -Ph)	sec-C ₄ H ₉
C-281	CH ₂ (2-F-Ph)	sec-C ₄ H ₉
C-282	CH ₂ (3-F-Ph)	sec-C ₄ H ₉
C-283	CH ₂ (4-F-Ph)	sec-C ₄ H ₉
C-284	CH ₂ (2-OMe-Ph)	sec-C ₄ H ₉
C-285	CH ₂ (3-OMe-Ph)	sec-C ₄ H ₉
C-286	CH ₂ (4-OMe-Ph)	sec-C ₄ H ₉
C-287	CH(CH ₃)Ph	sec-C ₄ H ₉
C-288	CH(CH ₃)(2-Cl-Ph)	sec-C ₄ H ₉
C-289	CH(CH ₃)(3-Cl-Ph)	sec-C ₄ H ₉
C-290	CH(CH ₃)(4-Cl-Ph)	sec-C ₄ H ₉
C-291	CH(CH ₃)(2-CF ₃ -Ph)	sec-C ₄ H ₉
C-292	CH(CH ₃)(3-CF ₃ -Ph)	sec-C ₄ H ₉
C-293	CH(CH ₃)(4-CF ₃ -Ph)	sec-C ₄ H ₉
C-294	CH ₂ CH ₂ Ph	sec-C ₄ H ₉

Compound	R ⁴	R ¹
C-295	CH ₂ CH=CH ₂	t-C ₄ H ₉
C-296	CH ₂ C(CH ₃)=CH ₂	t-C ₄ H ₉
C-297	CH ₂ C(CH ₃)=CHCH ₃	t-C ₄ H ₉
C-298	CH ₂ CH=C(CH ₃) ₂	t-C ₄ H ₉
C-299	CH ₂ CCl=CH ₂	t-C ₄ H ₉
C-300	CH ₂ CH=CCl ₂	t-C ₄ H ₉
C-301	CH ₂ CH=CHCF ₃	t-C ₄ H ₉
C-302	CH ₂ CH=CHPh	t-C ₄ H ₉
C-303	CH(CH ₃)CH=CH ₂	t-C ₄ H ₉
C-304	CH ₂ CCH	t-C ₄ H ₉
C-305	CH ₂ CCCH ₃	t-C ₄ H ₉
C-306	CH ₂ CF ₃	t-C ₄ H ₉
C-307	CH ₂ CH ₂ OCH ₃	t-C ₄ H ₉
C-308	CH ₂ CH ₂ OC ₂ H ₅	t-C ₄ H ₉
C-309	CH ₂ CH ₂ CH ₂ OCH ₃	t-C ₄ H ₉
C-310	CH ₂ CH ₂ CH ₂ OC ₂ H ₅	t-C ₄ H ₉
C-311	CH ₂ CH(OCH ₃) ₂	t-C ₄ H ₉
C-312	CH ₂ CN	t-C ₄ H ₉
C-313	CH ₂ (cyclo-C ₃ H ₅)	t-C ₄ H ₉
C-314	CH ₂ (cyclo-C ₅ H ₉)	t-C ₄ H ₉
C-315	CH ₂ (cyclo-C ₆ H ₁₁)	t-C ₄ H ₉
C-316	CH ₂ Ph	t-C ₄ H ₉
C-317	CH ₂ (2-Cl-Ph)	t-C ₄ H ₉
C-318	CH ₂ (3-Cl-Ph)	t-C ₄ H ₉
C-319	CH ₂ (4-Cl-Ph)	t-C ₄ H ₉
C-320	CH ₂ (2-CF ₃ -Ph)	t-C ₄ H ₉
C-321	CH ₂ (3-CF ₃ -Ph)	t-C ₄ H ₉
C-322	CH ₂ (4-CF ₃ -Ph)	t-C ₄ H ₉
C-323	CH ₂ (2-F-Ph)	t-C ₄ H ₉
C-324	CH ₂ (3-F-Ph)	t-C ₄ H ₉
C-325	CH ₂ (4-F-Ph)	t-C ₄ H ₉
C-326	CH ₂ (2-OMe-Ph)	t-C ₄ H ₉
C-327	CH ₂ (3-OMe-Ph)	t-C ₄ H ₉
C-328	CH ₂ (4-OMe-Ph)	t-C ₄ H ₉
C-329	CH(CH ₃)Ph	t-C ₄ H ₉
C-330	CH(CH ₃)(2-Cl-Ph)	t-C ₄ H ₉
C-331	CH(CH ₃)(3-Cl-Ph)	t-C ₄ H ₉
C-332	CH(CH ₃)(4-Cl-Ph)	t-C ₄ H ₉
C-333	CH(CH ₃)(2-CF ₃ -Ph)	t-C ₄ H ₉
C-334	CH(CH ₃)(3-CF ₃ -Ph)	t-C ₄ H ₉
C-335	CH(CH ₃)(4-CF ₃ -Ph)	t-C ₄ H ₉
C-336	CH ₂ CH ₂ Ph	t-C ₄ H ₉

Compound	R ⁴	R ¹
C-337	CH ₂ CH=CH ₂	n-C ₅ H ₁₁
C-338	CH ₂ C(CH ₃)=CH ₂	n-C ₅ H ₁₁
C-339	CH ₂ C(CH ₃)=CHCH ₃	n-C ₅ H ₁₁
C-340	CH ₂ CH=C(CH ₃) ₂	n-C ₅ H ₁₁
C-341	CH ₂ CCl=CH ₂	n-C ₅ H ₁₁
C-342	CH ₂ CH=CCl ₂	n-C ₅ H ₁₁
C-343	CH ₂ CH=CHCF ₃	n-C ₅ H ₁₁
C-344	CH ₂ CH=CHPh	n-C ₅ H ₁₁
C-345	CH(CH ₃)CH=CH ₂	n-C ₅ H ₁₁
C-346	CH ₂ CCH	n-C ₅ H ₁₁
C-347	CH ₂ CCCH ₃	n-C ₅ H ₁₁
C-348	CH ₂ CF ₃	n-C ₅ H ₁₁
C-349	CH ₂ CH ₂ OCH ₃	n-C ₅ H ₁₁
C-350	CH ₂ CH ₂ OC ₂ H ₅	n-C ₅ H ₁₁
C-351	CH ₂ CH ₂ CH ₂ OCH ₃	n-C ₅ H ₁₁
C-352	CH ₂ CH ₂ CH ₂ OC ₂ H ₅	n-C ₅ H ₁₁
C-353	CH ₂ CH(OCH ₃) ₂	n-C ₅ H ₁₁
C-354	CH ₂ CN	n-C ₅ H ₁₁
C-355	CH ₂ (cyclo-C ₃ H ₅)	n-C ₅ H ₁₁
C-356	CH ₂ (cyclo-C ₅ H ₉)	n-C ₅ H ₁₁
C-357	CH ₂ (cyclo-C ₆ H ₁₁)	n-C ₅ H ₁₁
C-358	CH ₂ Ph	n-C ₅ H ₁₁
C-359	CH ₂ (2-Cl-Ph)	n-C ₅ H ₁₁
C-360	CH ₂ (3-Cl-Ph)	n-C ₅ H ₁₁
C-361	CH ₂ (4-Cl-Ph)	n-C ₅ H ₁₁
C-362	CH ₂ (2-CF ₃ -Ph)	n-C ₅ H ₁₁
C-363	CH ₂ (3-CF ₃ -Ph)	n-C ₅ H ₁₁
C-364	CH ₂ (4-CF ₃ -Ph)	n-C ₅ H ₁₁
C-365	CH ₂ (2-F-Ph)	n-C ₅ H ₁₁
C-366	CH ₂ (3-F-Ph)	n-C ₅ H ₁₁
C-367	CH ₂ (4-F-Ph)	n-C ₅ H ₁₁
C-368	CH ₂ (2-OMe-Ph)	n-C ₅ H ₁₁
C-369	CH ₂ (3-OMe-Ph)	n-C ₅ H ₁₁
C-370	CH ₂ (4-OMe-Ph)	n-C ₅ H ₁₁
C-371	CH(CH ₃)Ph	n-C ₅ H ₁₁
C-372	CH(CH ₃)(2-Cl-Ph)	n-C ₅ H ₁₁
C-373	CH(CH ₃)(3-Cl-Ph)	n-C ₅ H ₁₁
C-374	CH(CH ₃)(4-Cl-Ph)	n-C ₅ H ₁₁
C-375	CH(CH ₃)(2-CF ₃ -Ph)	n-C ₅ H ₁₁
C-376	CH(CH ₃)(3-CF ₃ -Ph)	n-C ₅ H ₁₁
C-377	CH(CH ₃)(4-CF ₃ -Ph)	n-C ₅ H ₁₁
C-378	CH ₂ CH ₂ Ph	n-C ₅ H ₁₁

Compound	R ⁴	R ¹
C-379	CH ₂ CH=CH ₂	n-C ₆ H ₁₃
C-380	CH ₂ C(CH ₃)=CH ₂	n-C ₆ H ₁₃
C-381	CH ₂ C(CH ₃)=CHCH ₃	n-C ₆ H ₁₃
C-382	CH ₂ CH=C(CH ₃) ₂	n-C ₆ H ₁₃
C-383	CH ₂ CCl=CH ₂	n-C ₆ H ₁₃
C-384	CH ₂ CH=CCl ₂	n-C ₆ H ₁₃
C-385	CH ₂ CH=CHCF ₃	n-C ₆ H ₁₃
C-386	CH ₂ CH=CHPh	n-C ₆ H ₁₃
C-387	CH(CH ₃)CH=CH ₂	n-C ₆ H ₁₃
C-388	CH ₂ CCH	n-C ₆ H ₁₃
C-389	CH ₂ CCCH ₃	n-C ₆ H ₁₃
C-390	CH ₂ CF ₃	n-C ₆ H ₁₃
C-391	CH ₂ CH ₂ OCH ₃	n-C ₆ H ₁₃
C-392	CH ₂ CH ₂ OC ₂ H ₅	n-C ₆ H ₁₃
C-393	CH ₂ CH ₂ CH ₂ OCH ₃	n-C ₆ H ₁₃
C-394	CH ₂ CH ₂ CH ₂ OC ₂ H ₅	n-C ₆ H ₁₃
C-395	CH ₂ CH(OCH ₃) ₂	n-C ₆ H ₁₃
C-396	CH ₂ CN	n-C ₆ H ₁₃
C-397	CH ₂ (cyclo-C ₃ H ₅)	n-C ₆ H ₁₃
C-398	CH ₂ (cyclo-C ₅ H ₉)	n-C ₆ H ₁₃
C-399	CH ₂ (cyclo-C ₆ H ₁₁)	n-C ₆ H ₁₃
C-400	CH ₂ Ph	n-C ₆ H ₁₃
C-401	CH ₂ (2-Cl-Ph)	n-C ₆ H ₁₃
C-402	CH ₂ (3-Cl-Ph)	n-C ₆ H ₁₃
C-403	CH ₂ (4-Cl-Ph)	n-C ₆ H ₁₃
C-404	CH ₂ (2-CF ₃ -Ph)	n-C ₆ H ₁₃
C-405	CH ₂ (3-CF ₃ -Ph)	n-C ₆ H ₁₃
C-406	CH ₂ (4-CF ₃ -Ph)	n-C ₆ H ₁₃
C-407	CH ₂ (2-F-Ph)	n-C ₆ H ₁₃
C-408	CH ₂ (3-F-Ph)	n-C ₆ H ₁₃
C-409	CH ₂ (4-F-Ph)	n-C ₆ H ₁₃
C-410	CH ₂ (2-OMe-Ph)	n-C ₆ H ₁₃
C-411	CH ₂ (3-OMe-Ph)	n-C ₆ H ₁₃
C-412	CH ₂ (4-OMe-Ph)	n-C ₆ H ₁₃
C-413	CH(CH ₃)Ph	n-C ₆ H ₁₃
C-414	CH(CH ₃)(2-Cl-Ph)	n-C ₆ H ₁₃
C-415	CH(CH ₃)(3-Cl-Ph)	n-C ₆ H ₁₃
C-416	CH(CH ₃)(4-Cl-Ph)	n-C ₆ H ₁₃
C-417	CH(CH ₃)(2-CF ₃ -Ph)	n-C ₆ H ₁₃
C-418	CH(CH ₃)(3-CF ₃ -Ph)	n-C ₆ H ₁₃
C-419	CH(CH ₃)(4-CF ₃ -Ph)	n-C ₆ H ₁₃
C-420	CH ₂ CH ₂ Ph	n-C ₆ H ₁₃

Compound	R ⁴	R ¹
C-421	CH ₂ CH=CH ₂	cyclo-C ₅ H ₉
C-422	CH ₂ C(CH ₃)=CH ₂	cyclo-C ₅ H ₉
C-423	CH ₂ C(CH ₃)=CHCH ₃	cyclo-C ₅ H ₉
C-424	CH ₂ CH=C(CH ₃) ₂	cyclo-C ₅ H ₉
C-425	CH ₂ CCl=CH ₂	cyclo-C ₅ H ₉
C-426	CH ₂ CH=CCl ₂	cyclo-C ₅ H ₉
C-427	CH ₂ CH=CHCF ₃	cyclo-C ₅ H ₉
C-428	CH ₂ CH=CHPh	cyclo-C ₅ H ₉
C-429	CH(CH ₃)CH=CH ₂	cyclo-C ₅ H ₉
C-430	CH ₂ CCH	cyclo-C ₅ H ₉
C-431	CH ₂ CCCH ₃	cyclo-C ₅ H ₉
C-432	CH ₂ CF ₃	cyclo-C ₅ H ₉
C-433	CH ₂ CH ₂ OCH ₃	cyclo-C ₅ H ₉
C-434	CH ₂ CH ₂ OC ₂ H ₅	cyclo-C ₅ H ₉
C-435	CH ₂ CH ₂ CH ₂ OCH ₃	cyclo-C ₅ H ₉
C-436	CH ₂ CH ₂ CH ₂ OC ₂ H ₅	cyclo-C ₅ H ₉
C-437	CH ₂ CH(OCH ₃) ₂	cyclo-C ₅ H ₉
C-438	CH ₂ CN	cyclo-C ₅ H ₉
C-439	CH ₂ (cyclo-C ₃ H ₅)	cyclo-C ₅ H ₉
C-440	CH ₂ (cyclo-C ₅ H ₉)	cyclo-C ₅ H ₉
C-441	CH ₂ (cyclo-C ₆ H ₁₁)	cyclo-C ₅ H ₉
C-442	CH ₂ Ph	cyclo-C ₅ H ₉
C-443	CH ₂ (2-Cl-Ph)	cyclo-C ₅ H ₉
C-444	CH ₂ (3-Cl-Ph)	cyclo-C ₅ H ₉
C-445	CH ₂ (4-Cl-Ph)	cyclo-C ₅ H ₉
C-446	CH ₂ (2-CF ₃ -Ph)	cyclo-C ₅ H ₉
C-447	CH ₂ (3-CF ₃ -Ph)	cyclo-C ₅ H ₉
C-448	CH ₂ (4-CF ₃ -Ph)	cyclo-C ₅ H ₉
C-449	CH ₂ (2-F-Ph)	cyclo-C ₅ H ₉
C-450	CH ₂ (3-F-Ph)	cyclo-C ₅ H ₉
C-451	CH ₂ (4-F-Ph)	cyclo-C ₅ H ₉
C-452	CH ₂ (2-OMe-Ph)	cyclo-C ₅ H ₉
C-453	CH ₂ (3-OMe-Ph)	cyclo-C ₅ H ₉
C-454	CH ₂ (4-OMe-Ph)	cyclo-C ₅ H ₉
C-455	CH(CH ₃)Ph	cyclo-C ₅ H ₉
C-456	CH(CH ₃)(2-Cl-Ph)	cyclo-C ₅ H ₉
C-457	CH(CH ₃)(3-Cl-Ph)	cyclo-C ₅ H ₉
C-458	CH(CH ₃)(4-Cl-Ph)	cyclo-C ₅ H ₉
C-459	CH(CH ₃)(2-CF ₃ -Ph)	cyclo-C ₅ H ₉
C-460	CH(CH ₃)(3-CF ₃ -Ph)	cyclo-C ₅ H ₉
C-461	CH(CH ₃)(4-CF ₃ -Ph)	cyclo-C ₅ H ₉
C-462	CH ₂ CH ₂ Ph	cyclo-C ₅ H ₉

Compound	R ⁴	R ¹
C-463	CH3	cyclo-C6H11
C-464	C2H5	cyclo-C6H11
C-465	n-C3H7	cyclo-C6H11
C-466	i-C3H7	cyclo-C6H11
C-467	n-C4H9	cyclo-C6H11
C-468	s-C4H9	cyclo-C6H11
C-469	i-C4H9	cyclo-C6H11
C-470	t-C4H9	cyclo-C6H11
C-471	n-C5H11	cyclo-C6H11
C-472	n-C6H13	cyclo-C6H11
C-473	CH2CH=CH2	cyclo-C6H11
C-474	CH2C(CH3)=CH2	cyclo-C6H11
C-475	CH2C(CH3)=CHCH3	cyclo-C6H11
C-476	CH2CH=C(CH3)2	cyclo-C6H11
C-477	CH2CCl=CH2	cyclo-C6H11
C-478	CH2CH=CCl2	cyclo-C6H11
C-479	CH2CH=CHCF3	cyclo-C6H11
C-480	CH2CH=CHPh	cyclo-C6H11
C-481	CH(CH3)CH=CH2	cyclo-C6H11
C-482	CH2CCH	cyclo-C6H11
C-483	CH2CCCH3	cyclo-C6H11
C-484	CH2CF3	cyclo-C6H11
C-485	CH2CH2OCH3	cyclo-C6H11
C-486	CH2CH2OC2H5	cyclo-C6H11
C-487	CH2CH2CH2OCH3	cyclo-C6H11
C-488	CH2CH2CH2OC2H5	cyclo-C6H11
C-489	CH2CH(OCH3)2	cyclo-C6H11
C-490	CH2CN	cyclo-C6H11
C-491	CH2(cyclo-C3H5)	cyclo-C6H11
C-492	CH2(cyclo-C5H9)	cyclo-C6H11
C-493	CH2(cyclo-C6H11)	cyclo-C6H11
C-494	CH2Ph	cyclo-C6H11
C-495	CH2(2-Cl-Ph)	cyclo-C6H11
C-496	CH2(3-Cl-Ph)	cyclo-C6H11
C-497	CH2(4-Cl-Ph)	cyclo-C6H11
C-498	CH2(2-CF3-Ph)	cyclo-C6H11
C-499	CH2(3-CF3-Ph)	cyclo-C6H11
C-500	CH2(4-CF3-Ph)	cyclo-C6H11
C-501	CH2(2-F-Ph)	cyclo-C6H11
C-502	CH2(3-F-Ph)	cyclo-C6H11
C-503	CH2(4-F-Ph)	cyclo-C6H11
C-504	CH2(2-OMe-Ph)	cyclo-C6H11

Compound	R ⁴	R ¹
C-505	CH2(3-OMe-Ph)	cyclo-C6H11
C-506	CH2(4-OMe-Ph)	cyclo-C6H11
C-507	CH(CH3)Ph	cyclo-C6H11
C-508	CH(CH3)(2-Cl-Ph)	cyclo-C6H11
C-509	CH(CH3)(3-Cl-Ph)	cyclo-C6H11
C-510	CH(CH3)(4-Cl-Ph)	cyclo-C6H11
C-511	CH(CH3)(2-CF ₃ -Ph)	cyclo-C6H11
C-512	CH(CH3)(3-CF ₃ -Ph)	cyclo-C6H11
C-513	CH(CH3)(4-CF ₃ -Ph)	cyclo-C6H11
C-514	CH ₂ CH ₂ Ph	cyclo-C6H11
C-515	CH ₃	CH ₂ Ph
C-516	C ₂ H ₅	CH ₂ Ph
C-517	n-C ₃ H ₇	CH ₂ Ph
C-518	i-C ₃ H ₇	CH ₂ Ph
C-519	n-C ₄ H ₉	CH ₂ Ph
C-520	s-C ₄ H ₉	CH ₂ Ph
C-521	i-C ₄ H ₉	CH ₂ Ph
C-522	t-C ₄ H ₉	CH ₂ Ph
C-523	n-C ₅ H ₁₁	CH ₂ Ph
C-524	n-C ₆ H ₁₃	CH ₂ Ph
C-525	CH ₂ CH=CH ₂	CH ₂ Ph
C-526	CH ₂ C(CH ₃)=CH ₂	CH ₂ Ph
C-527	CH ₂ C(CH ₃)=CHCH ₃	CH ₂ Ph
C-528	CH ₂ CH=C(CH ₃) ₂	CH ₂ Ph
C-529	CH ₂ CCl=CH ₂	CH ₂ Ph
C-530	CH ₂ CH=CCl ₂	CH ₂ Ph
C-531	CH ₂ CH=CHCF ₃	CH ₂ Ph
C-532	CH ₂ CH=CHPh	CH ₂ Ph
C-533	CH(CH ₃)CH=CH ₂	CH ₂ Ph
C-534	CH ₂ CCH	CH ₂ Ph
C-535	CH ₂ CCCH ₃	CH ₂ Ph
C-536	CH ₂ CF ₃	CH ₂ Ph
C-537	CH ₂ CH ₂ OCH ₃	CH ₂ Ph
C-538	CH ₂ CH ₂ OC ₂ H ₅	CH ₂ Ph
C-539	CH ₂ CH ₂ CH ₂ OCH ₃	CH ₂ Ph
C-540	CH ₂ CH ₂ CH ₂ OC ₂ H ₅	CH ₂ Ph
C-541	CH ₂ CH(OCH ₃) ₂	CH ₂ Ph
C-542	CH ₂ CN	CH ₂ Ph
C-543	CH ₂ (cyclo-C ₃ H ₅)	CH ₂ Ph
C-544	CH ₂ (cyclo-C ₅ H ₉)	CH ₂ Ph
C-545	CH ₂ (cyclo-C ₆ H ₁₁)	CH ₂ Ph
C-546	CH ₂ Ph	CH ₂ Ph

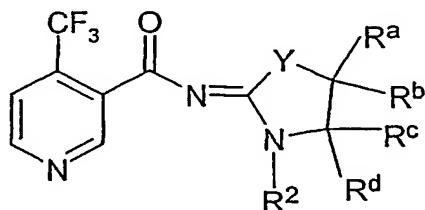
Compound	R ⁴	R ¹
C-547	CH2(2-Cl-Ph)	CH2Ph
C-548	CH2(3-Cl-Ph)	CH2Ph
C-549	CH2(4-Cl-Ph)	CH2Ph
C-550	CH2(2-CF ₃ -Ph)	CH2Ph
C-551	CH2(3-CF ₃ -Ph)	CH2Ph
C-552	CH2(4-CF ₃ -Ph)	CH2Ph
C-553	CH2(2-F-Ph)	CH2Ph
C-554	CH2(3-F-Ph)	CH2Ph
C-555	CH2(4-F-Ph)	CH2Ph
C-556	CH2(2-OMe-Ph)	CH2Ph
C-557	CH2(3-OMe-Ph)	CH2Ph
C-558	CH2(4-OMe-Ph)	CH2Ph
C-559	CH(CH ₃)Ph	CH2Ph
C-560	CH(CH ₃)(2-Cl-Ph)	CH2Ph
C-561	CH(CH ₃)(3-Cl-Ph)	CH2Ph
C-562	CH(CH ₃)(4-Cl-Ph)	CH2Ph
C-563	CH(CH ₃)(2-CF ₃ -Ph)	CH2Ph
C-564	CH(CH ₃)(3-CF ₃ -Ph)	CH2Ph
C-565	CH(CH ₃)(4-CF ₃ -Ph)	CH2Ph
C-566	CH ₂ CH ₂ Ph	CH2Ph
C-567	n-C ₃ H ₇	CH(CH ₃)Ph
C-568	i-C ₃ H ₇	CH(CH ₃)Ph
C-569	CH ₂ CH=CH ₂	CH(CH ₃)Ph
C-570	CH ₂ C(CH ₃)=CH ₂	CH(CH ₃)Ph
C-571	CH ₂ C(CH ₃)=CHCH ₃	CH(CH ₃)Ph
C-572	CH ₂ CH=C(CH ₃) ₂	CH(CH ₃)Ph
C-573	CH ₂ Ph	CH(CH ₃)Ph
C-574	CH ₂ (3-CF ₃ -Ph)	CH(CH ₃)Ph
C-575	n-C ₃ H ₇	CH ₂ (2-Cl-Ph)
C-576	i-C ₃ H ₇	CH ₂ (2-Cl-Ph)
C-577	CH ₂ CH=CH ₂	CH ₂ (2-Cl-Ph)
C-578	CH ₂ C(CH ₃)=CH ₂	CH ₂ (2-Cl-Ph)
C-579	CH ₂ C(CH ₃)=CHCH ₃	CH ₂ (2-Cl-Ph)
C-580	CH ₂ CH=C(CH ₃) ₂	CH ₂ (2-Cl-Ph)
C-581	CH ₂ Ph	CH ₂ (2-Cl-Ph)
C-582	CH ₂ (3-CF ₃ -Ph)	CH ₂ (2-Cl-Ph)
C-583	n-C ₃ H ₇	CH ₂ (3-Cl-Ph)
C-584	i-C ₃ H ₇	CH ₂ (3-Cl-Ph)
C-585	CH ₂ CH=CH ₂	CH ₂ (3-Cl-Ph)
C-586	CH ₂ C(CH ₃)=CH ₂	CH ₂ (3-Cl-Ph)
C-587	CH ₂ C(CH ₃)=CHCH ₃	CH ₂ (3-Cl-Ph)
C-588	CH ₂ CH=C(CH ₃) ₂	CH ₂ (3-Cl-Ph)

Compound	R ⁴	R ¹
C-589	CH2Ph	CH2(3-Cl-Ph)
C-590	CH2(3-CF ₃ -Ph)	CH2(3-Cl-Ph)
C-591	n-C ₃ H ₇	CH2(4-Cl-Ph)
C-592	i-C ₃ H ₇	CH2(4-Cl-Ph)
C-593	CH ₂ CH=CH ₂	CH2(4-Cl-Ph)
C-594	CH ₂ C(CH ₃)=CH ₂	CH2(4-Cl-Ph)
C-595	CH ₂ C(CH ₃)=CHCH ₃	CH2(4-Cl-Ph)
C-596	CH ₂ CH=C(CH ₃) ₂	CH2(4-Cl-Ph)
C-597	CH ₂ Ph	CH2(4-Cl-Ph)
C-598	CH ₂ (3-CF ₃ -Ph)	CH2(4-Cl-Ph)
C-599	n-C ₃ H ₇	CH2(4-MeO-Ph)
C-600	i-C ₃ H ₇	CH2(4-MeO-Ph)
C-601	CH ₂ CH=CH ₂	CH2(4-MeO-Ph)
C-602	CH ₂ C(CH ₃)=CH ₂	CH2(4-MeO-Ph)
C-603	CH ₂ C(CH ₃)=CHCH ₃	CH2(4-MeO-Ph)
C-604	CH ₂ CH=C(CH ₃) ₂	CH2(4-MeO-Ph)
C-605	CH ₂ Ph	CH2(4-MeO-Ph)
C-606	CH ₂ (3-CF ₃ -Ph)	CH2(4-MeO-Ph)
C-607	CH ₂ CCH	CH ₂ CH ₂ CH(OCH ₃)CH ₃
C-608	CH ₃	CH ₂ CH ₂ CH ₂ SCH ₃
C-609	CH ₃	NHCH ₃
C-610	C ₂ H ₅	NHCH ₃
C-611	i-C ₃ H ₇	NHCH ₃
C-612	CH ₂ CH=CH ₂	NHCH ₃
C-613	CH ₂ CCH	NHCH ₃
C-614	CH ₂ Ph	NHCH ₃
C-615	CH ₃	NHC ₂ H ₅
C-616	C ₂ H ₅	NHC ₂ H ₅
C-617	i-C ₃ H ₇	NHC ₂ H ₅
C-618	CH ₂ CH=CH ₂	NHC ₂ H ₅
C-619	CH ₂ CCH	NHC ₂ H ₅
C-620	CH ₂ Ph	NHC ₂ H ₅
C-621	CH ₃	NH(i-C ₃ H ₇)
C-622	C ₂ H ₅	NH(i-C ₃ H ₇)
C-623	i-C ₃ H ₇	NH(i-C ₃ H ₇)
C-624	CH ₂ CH=CH ₂	NH(i-C ₃ H ₇)
C-625	CH ₂ CCH	NH(i-C ₃ H ₇)
C-626	CH ₂ Ph	NH(i-C ₃ H ₇)
C-627	CH ₃	NH(t-C ₄ H ₉)
C-628	C ₂ H ₅	NH(t-C ₄ H ₉)
C-629	i-C ₃ H ₇	NH(t-C ₄ H ₉)
C-630	CH ₂ CH=CH ₂	NH(t-C ₄ H ₉)

Compound	R ⁴	R ¹
C-631	CH ₂ CCH	NH(t-C ₄ H ₉)
C-632	CH ₂ Ph	NH(t-C ₄ H ₉)
C-633	CH ₃	NH(cyclo-C ₆ H ₁₁)
C-634	C ₂ H ₅	NH(cyclo-C ₆ H ₁₁)
C-635	i-C ₃ H ₇	NH(cyclo-C ₆ H ₁₁)
C-636	CH ₂ CH=CH ₂	NH(cyclo-C ₆ H ₁₁)
C-637	CH ₂ CCH	NH(cyclo-C ₆ H ₁₁)
C-638	CH ₂ Ph	NH(cyclo-C ₆ H ₁₁)
C-639	CH ₃	NHCH ₂ Ph
C-640	C ₂ H ₅	NHCH ₂ Ph
C-641	i-C ₃ H ₇	NHCH ₂ Ph
C-642	CH ₂ CH=CH ₂	NHCH ₂ Ph
C-643	CH ₂ CCH	NHCH ₂ Ph
C-644	CH ₂ Ph	NHCH ₂ Ph
C-645	CH ₃	NHPh
C-646	C ₂ H ₅	NHPh
C-647	i-C ₃ H ₇	NHPh
C-648	t-C ₄ H ₉	NHPh
C-649	CH ₂ CCH	NHPh
C-650	CH ₂ Ph	NHPh
C-651	CH ₂ CCH	CH ₂ CH ₂ CH(CH ₃)OCH ₃

Table 4

Compounds of formula (Id):



(Id)

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Compound	Y	R ²	R ^c	R ^d	R ^a	R ^b
D-1	S	H	H	H	H	H
D-2	S	CH ₃	H	H	H	H
D-3	S	C ₂ H ₅	H	H	H	H
D-4	S	n-C ₃ H ₇	H	H	H	H
D-5	S	i-C ₃ H ₇	H	H	H	H
D-6	S	n-C ₄ H ₉	H	H	H	H
D-7	S	s-C ₄ H ₉	H	H	H	H
D-8	S	i-C ₄ H ₉	H	H	H	H
D-9	S	t-C ₄ H ₉	H	H	H	H

Compound	Y	R ²	R ^c	R ^d	R ^a	R ^b
D-10	S	n-C5H11	H	H	H	H
D-11	S	n-C6H13	H	H	H	H
D-12	S	CH2CH=CH2	H	H	H	H
D-13	S	CH2C(CH3)=CH2	H	H	H	H
D-14	S	CH2C(CH3)=CHCH3	H	H	H	H
D-15	S	CH2CH=C(CH3)2	H	H	H	H
D-16	S	CH2CCl=CH2	H	H	H	H
D-17	S	CH2CH=CCl2	H	H	H	H
D-18	S	CH2CH=CHCF3	H	H	H	H
D-19	S	CH(CH3)CH=CH2	H	H	H	H
D-20	S	CH2CCH	H	H	H	H
D-21	S	CH2CCCH3	H	H	H	H
D-22	S	CH2CF3	H	H	H	H
D-23	S	CH2CH2OCH3	H	H	H	H
D-24	S	CH2CH2OC2H5	H	H	H	H
D-25	S	CH2CH2CH2OCH3	H	H	H	H
D-26	S	CH2CH2CH2OC2H5	H	H	H	H
D-27	S	CH2CH(OCH3)2	H	H	H	H
D-28	S	CH2CN	H	H	H	H
D-29	S	C(CH3)2CN	H	H	H	H
D-30	S	C(CH3)(i-C3H7)CN	H	H	H	H
D-31	S	CH2CO2CH3	H	H	H	H
D-32	S	CH2CO2C2H5	H	H	H	H
D-33	S	CH(CH3)CO2CH3	H	H	H	H
D-34	S	cyclo-C3H7	H	H	H	H
D-35	S	cyclo-C5H9	H	H	H	H
D-36	S	cyclo-C6H11	H	H	H	H
D-37	S	CH2(cyclo-C3H5)	H	H	H	H
D-38	S	CH2(cyclo-C5H9)	H	H	H	H
D-39	S	CH2(cyclo-C6H11)	H	H	H	H
D-40	S	CH2Ph	H	H	H	H
D-41	S	CH2(2-Cl-Ph)	H	H	H	H
D-42	S	CH2(3-Cl-Ph)	H	H	H	H
D-43	S	CH2(4-Cl-Ph)	H	H	H	H
D-44	S	CH2(2-CF3-Ph)	H	H	H	H
D-45	S	CH2(3-CF3-Ph)	H	H	H	H
D-46	S	CH2(4-CF3-Ph)	H	H	H	H
D-47	S	CH2(2-F-Ph)	H	H	H	H
D-48	S	CH2(3-F-Ph)	H	H	H	H
D-49	S	CH2(4-F-Ph)	H	H	H	H
D-50	S	CH2(2-OMe-Ph)	H	H	H	H
D-51	S	CH2(3-OMe-Ph)	H	H	H	H

Compound	Y	R ²	R ^c	R ^d	R ^a	R ^b
D-52	S	CH2(4-OMe-Ph)	H	H	H	H
D-53	S	CH(CH3)Ph	H	H	H	H
D-54	S	CH(CH3)(2-Cl-Ph)	H	H	H	H
D-55	S	CH(CH3)(3-Cl-Ph)	H	H	H	H
D-56	S	CH(CH3)(4-Cl-Ph)	H	H	H	H
D-57	S	CH(CH3)(2-CF3-Ph)	H	H	H	H
D-58	S	CH(CH3)(3-CF3-Ph)	H	H	H	H
D-59	S	CH(CH3)(4-CF3-Ph)	H	H	H	H
D-60	S	Ph	H	H	H	H
D-61	S	2-Cl-Ph	H	H	H	H
D-62	S	3-Cl-Ph	H	H	H	H
D-63	S	4-Cl-Ph	H	H	H	H
D-64	S	2-CF3-Ph	H	H	H	H
D-65	S	3-CF3-Ph	H	H	H	H
D-66	S	4-CF3-Ph	H	H	H	H
D-67	S	2-CH3O-Ph	H	H	H	H
D-68	S	3-CH3O-Ph	H	H	H	H
D-69	S	4-CH3O-Ph	H	H	H	H
D-70	S	4-CF3O-Ph	H	H	H	H
D-71	S	4-CF3CH2O-Ph	H	H	H	H
D-72	S	4-PhO-Ph	H	H	H	H
D-73	S	4-(4-Cl-Ph)O-Ph	H	H	H	H
D-74	S	4-(4-CF3-Ph)O-Ph	H	H	H	H
D-75	S	OCH3	H	H	H	H
D-76	S	OC2H5	H	H	H	H
D-77	S	O-n-C3H7	H	H	H	H
D-78	S	O-i-C3H7	H	H	H	H
D-79	S	O-n-C4H9	H	H	H	H
D-80	S	O-i-C4H7	H	H	H	H
D-81	S	O-sec-C4H9	H	H	H	H
D-82	S	O-t-C4H9	H	H	H	H
D-83	S	O-n-C5H11	H	H	H	H
D-84	S	OCH2CH=CH2	H	H	H	H
D-85	S	OCH2C(CH3)=CH2	H	H	H	H
D-86	S	OCH2CH=CHCH3	H	H	H	H
D-87	S	OCH2CH=C(CH3)2	H	H	H	H
D-88	S	OCH2CCH	H	H	H	H
D-89	S	OCH2CCCH3	H	H	H	H
D-90	S	OCH2Ph	H	H	H	H
D-91	S	OCH(CH3)Ph	H	H	H	H
D-92	S	OCH2(2-Cl-Ph)	H	H	H	H
D-93	S	OCH2(3-Cl-Ph)	H	H	H	H

Compound	Y	R ²	R ^c	R ^d	R ^a	R ^b
D-94	S	OCH2(4-Cl-Ph)	H	H	H	H
D-95	S	OCH2(2-OCH3-Ph)	H	H	H	H
D-96	S	OCH2(3-OCH3-Ph)	H	H	H	H
D-97	S	OCH2(4-OCH3-Ph)	H	H	H	H
D-98	S	OCH2(2-CF3-Ph)	H	H	H	H
D-99	S	OCH2(3-CF3-Ph)	H	H	H	H
D-100	S	OCH2(4-CF3-Ph)	H	H	H	H
D-101	S	OCH2(2-NO2-Ph)	H	H	H	H
D-102	S	OCH2(3-NO2-Ph)	H	H	H	H
D-103	S	OCH2(4-NO2-Ph)	H	H	H	H
D-104	S	CH3	O	H	H	H
D-105	S	C2H5	O	H	H	H
D-106	S	n-C3H7	O	H	H	H
D-107	S	i-C3H7	O	H	H	H
D-108	S	n-C4H9	O	H	H	H
D-109	S	s-C4H9	O	H	H	H
D-110	S	i-C4H9	O	H	H	H
D-111	S	t-C4H9	O	H	H	H
D-112	S	n-C5H11	O	H	H	H
D-113	S	n-C6H13	O	H	H	H
D-114	S	CH2CH=CH2	O	H	H	H
D-115	S	CH2C(CH3)=CH2	O	H	H	H
D-116	S	CH2C(CH3)=CHCH3	O	H	H	H
D-117	S	CH2CH=C(CH3)2	O	H	H	H
D-118	S	CH2CCl=CH2	O	H	H	H
D-119	S	CH2CH=CCl2	O	H	H	H
D-120	S	CH2CH=CHCF3	O	H	H	H
D-121	S	CH2CH=CHPh	O	H	H	H
D-122	S	CH(CH3)CH=CH2	O	H	H	H
D-123	S	CH2CCH	O	H	H	H
D-124	S	CH2CCCH3	O	H	H	H
D-125	S	CH2CF3	O	H	H	H
D-126	S	CH2CH2OCH3	O	H	H	H
D-127	S	CH2CH2OC2H5	O	H	H	H
D-128	S	CH2CH2CH2OCH3	O	H	H	H
D-129	S	CH2CH2CH2OC2H5	O	H	H	H
D-130	S	CH2CH(OCH3)2	O	H	H	H
D-131	S	CH2CN	O	H	H	H
D-132	S	C(CH3)2CN	O	H	H	H
D-133	S	C(CH3)(i-C3H7)CN	O	H	H	H
D-134	S	CH2CO2CH3	O	H	H	H
D-135	S	CH2CO2C2H5	O	H	H	H

Compound	Y	R ²	R ^c	R ^d	R ^a	R ^b
D-136	S	CH(CH3)CO2CH3		O	H	H
D-137	S	cyclo-C3H7		O	H	H
D-138	S	cyclo-C5H9		O	H	H
D-139	S	cyclo-C6H11		O	H	H
D-140	S	CH2(cyclo-C3H5)		O	H	H
D-141	S	CH2(cyclo-C5H9)		O	H	H
D-142	S	CH2(cyclo-C6H11)		O	H	H
D-143	S	CH2Ph		O	H	H
D-144	S	CH2(2-Cl-Ph)		O	H	H
D-145	S	CH2(3-Cl-Ph)		O	H	H
D-146	S	CH2(4-Cl-Ph)		O	H	H
D-147	S	CH2(2-CF3-Ph)		O	H	H
D-148	S	CH2(3-CF3-Ph)		O	H	H
D-149	S	CH2(4-CF3-Ph)		O	H	H
D-150	S	CH2(2-F-Ph)		O	H	H
D-151	S	CH2(3-F-Ph)		O	H	H
D-152	S	CH2(4-F-Ph)		O	H	H
D-153	S	CH2(2-OMe-Ph)		O	H	H
D-154	S	CH2(3-OMe-Ph)		O	H	H
D-155	S	CH2(4-OMe-Ph)		O	H	H
D-156	S	CH(CH3)Ph		O	H	H
D-157	S	CH(CH3)(2-Cl-Ph)		O	H	H
D-158	S	CH(CH3)(3-Cl-Ph)		O	H	H
D-159	S	CH(CH3)(4-Cl-Ph)		O	H	H
D-160	S	CH(CH3)(2-CF3-Ph)		O	H	H
D-161	S	CH(CH3)(3-CF3-Ph)		O	H	H
D-162	S	CH(CH3)(4-CF3-Ph)		O	H	H
D-163	S	Ph		O	H	H
D-164	S	2-Cl-Ph		O	H	H
D-165	S	3-Cl-Ph		O	H	H
D-166	S	4-Cl-Ph		O	H	H
D-167	S	2-CF3-Ph		O	H	H
D-168	S	3-CF3-Ph		O	H	H
D-169	S	4-CF3-Ph		O	H	H
D-170	S	2-CH3O-Ph		O	H	H
D-171	S	3-CH3O-Ph		O	H	H
D-172	S	4-CH3O-Ph		O	H	H
D-173	S	4-CF3O-Ph		O	H	H
D-174	S	4-CF3CH2O-Ph		O	H	H
D-175	S	4-PhO-Ph		O	H	H
D-176	S	4-(4-Cl-Ph)O-Ph		O	H	H
D-177	S	4-(4-CF3-Ph)O-Ph		O	H	H

Compound	Y	R ²	R ^c	R ^d	R ^a	R ^b
D-178	S	OCH3		O	H	H
D-179	S	OC2H5		O	H	H
D-180	S	O-n-C3H7		O	H	H
D-181	S	O-i-C3H7		O	H	H
D-182	S	O-n-C4H9		O	H	H
D-183	S	O-i-C4H7		O	H	H
D-184	S	O-sec-C4H9		O	H	H
D-185	S	O-t-C4H9		O	H	H
D-186	S	O-n-C5H11		O	H	H
D-187	S	OCH2CH=CH2		O	H	H
D-188	S	OCH2C(CH3)=CH2		O	H	H
D-189	S	OCH2CH=CHCH3		O	H	H
D-190	S	OCH2CH=C(CH3)2		O	H	H
D-191	S	OCH2CCH		O	H	H
D-192	S	OCH2CCCH3		O	H	H
D-193	S	OCH2Ph		O	H	H
D-194	S	OCH(CH3)Ph		O	H	H
D-195	S	OCH2(2-Cl-Ph)		O	H	H
D-196	S	OCH2(3-Cl-Ph)		O	H	H
D-197	S	OCH2(4-Cl-Ph)		O	H	H
D-198	S	OCH2(2-OCH3-Ph)		O	H	H
D-199	S	OCH2(3-OCH3-Ph)		O	H	H
D-200	S	OCH2(4-OCH3-Ph)		O	H	H
D-201	S	OCH2(2-CF3-Ph)		O	H	H
D-202	S	OCH2(3-CF3-Ph)		O	H	H
D-203	S	OCH2(4-CF3-Ph)		O	H	H
D-204	S	OCH2(2-NO2-Ph)		O	H	H
D-205	S	OCH2(3-NO2-Ph)		O	H	H
D-206	S	OCH2(4-NO2-Ph)		O	H	H
D-207	S	CH3		O	CH3	H
D-208	S	C2H5		O	CH3	H
D-209	S	n-C3H7		O	CH3	H
D-210	S	i-C3H7		O	CH3	H
D-211	S	n-C4H9		O	CH3	H
D-212	S	s-C4H9		O	CH3	H
D-213	S	i-C4H9		O	CH3	H
D-214	S	t-C4H9		O	CH3	H
D-215	S	n-C5H11		O	CH3	H
D-216	S	n-C6H13		O	CH3	H
D-217	S	CH2CH=CH2		O	CH3	H
D-218	S	CH2C(CH3)=CH2		O	CH3	H
D-219	S	CH2C(CH3)=CHCH3		O	CH3	H

Compound	Y	R ²	R ^c	R ^d	R ^a	R ^b
D-220	S	CH2CH=C(CH3)2		O	CH3	H
D-221	S	CH2CCl=CH2		O	CH3	H
D-222	S	CH2CH=CCl2		O	CH3	H
D-223	S	CH2CH=CHCF3		O	CH3	H
D-224	S	CH2CH=CHPh		O	CH3	H
D-225	S	CH(CH3)CH=CH2		O	CH3	H
D-226	S	CH2CCH		O	CH3	H
D-227	S	CH2CCCH3		O	CH3	H
D-228	S	CH2CF3		O	CH3	H
D-229	S	CH2CH2OCH3		O	CH3	H
D-230	S	CH2CH2OC2H5		O	CH3	H
D-231	S	CH2CH2CH2OCH3		O	CH3	H
D-232	S	CH2CH2CH2OC2H5		O	CH3	H
D-233	S	CH2CH(OCH3)2		O	CH3	H
D-234	S	CH2CN		O	CH3	H
D-235	S	C(CH3)2CN		O	CH3	H
D-236	S	C(CH3)(i-C3H7)CN		O	CH3	H
D-237	S	CH2CO2CH3		O	CH3	H
D-238	S	CH2CO2C2H5		O	CH3	H
D-239	S	CH(CH3)CO2CH3		O	CH3	H
D-240	S	cyclo-C3H7		O	CH3	H
D-241	S	cyclo-C5H9		O	CH3	H
D-242	S	cyclo-C6H11		O	CH3	H
D-243	S	CH2(cyclo-C3H5)		O	CH3	H
D-244	S	CH2(cyclo-C5H9)		O	CH3	H
D-245	S	CH2(cyclo-C6H11)		O	CH3	H
D-246	S	CH2Ph		O	CH3	H
D-247	S	CH2(2-Cl-Ph)		O	CH3	H
D-248	S	CH2(3-Cl-Ph)		O	CH3	H
D-249	S	CH2(4-Cl-Ph)		O	CH3	H
D-250	S	CH2(2-CF3-Ph)		O	CH3	H
D-251	S	CH2(3-CF3-Ph)		O	CH3	H
D-252	S	CH2(4-CF3-Ph)		O	CH3	H
D-253	S	CH2(2-F-Ph)		O	CH3	H
D-254	S	CH2(3-F-Ph)		O	CH3	H
D-255	S	CH2(4-F-Ph)		O	CH3	H
D-256	S	CH2(2-OMe-Ph)		O	CH3	H
D-257	S	CH2(3-OMe-Ph)		O	CH3	H
D-258	S	CH2(4-OMe-Ph)		O	CH3	H
D-259	S	CH(CH3)Ph		O	CH3	H
D-260	S	CH(CH3)(2-Cl-Ph)		O	CH3	H
D-261	S	CH(CH3)(3-Cl-Ph)		O	CH3	H

Compound	Y	R ²	R ^c	R ^d	R ^a	R ^b
D-262	S	CH(CH3)(4-Cl-Ph)		O	CH3	H
D-263	S	CH(CH3)(2-CF3-Ph)		O	CH3	H
D-264	S	CH(CH3)(3-CF3-Ph)		O	CH3	H
D-265	S	CH(CH3)(4-CF3-Ph)		O	CH3	H
D-266	S	Ph		O	CH3	H
D-267	S	2-Cl-Ph		O	CH3	H
D-268	S	3-Cl-Ph		O	CH3	H
D-269	S	4-Cl-Ph		O	CH3	H
D-270	S	2-CF3-Ph		O	CH3	H
D-271	S	3-CF3-Ph		O	CH3	H
D-272	S	4-CF3-Ph		O	CH3	H
D-273	S	2-CH3O-Ph		O	CH3	H
D-274	S	3-CH3O-Ph		O	CH3	H
D-275	S	4-CH3O-Ph		O	CH3	H
D-276	S	4-CF3O-Ph		O	CH3	H
D-277	S	4-CF3CH2O-Ph		O	CH3	H
D-278	S	4-PhO-Ph		O	CH3	H
D-279	S	4-(4-Cl-Ph)O-Ph		O	CH3	H
D-280	S	4-(4-CF3-Ph)O-Ph		O	CH3	H
D-281	S	OCH3		O	CH3	H
D-282	S	OC2H5		O	CH3	H
D-283	S	O-n-C3H7		O	CH3	H
D-284	S	O-i-C3H7		O	CH3	H
D-285	S	O-n-C4H9		O	CH3	H
D-286	S	O-i-C4H7		O	CH3	H
D-287	S	O-sec-C4H9		O	CH3	H
D-288	S	O-t-C4H9		O	CH3	H
D-289	S	O-n-C5H11		O	CH3	H
D-290	S	OCH2CH=CH2		O	CH3	H
D-291	S	OCH2C(CH3)=CH2		O	CH3	H
D-292	S	OCH2CH=CHCH3		O	CH3	H
D-293	S	OCH2CH=C(CH3)2		O	CH3	H
D-294	S	OCH2CCH		O	CH3	H
D-295	S	OCH2CCCH3		O	CH3	H
D-296	S	OCH2Ph		O	CH3	H
D-297	S	OCH(CH3)Ph		O	CH3	H
D-298	S	OCH2(2-Cl-Ph)		O	CH3	H
D-299	S	OCH2(3-Cl-Ph)		O	CH3	H
D-300	S	OCH2(4-Cl-Ph)		O	CH3	H
D-301	S	OCH2(2-OCH3-Ph)		O	CH3	H
D-302	S	OCH2(3-OCH3-Ph)		O	CH3	H
D-303	S	OCH2(4-OCH3-Ph)		O	CH3	H

Compound	Y	R ²	R ^c	R ^d	R ^a	R ^b
D-304	S	OCH2(2-CF ₃ -Ph)	O	CH3	H	
D-305	S	OCH2(3-CF ₃ -Ph)	O	CH3	H	
D-306	S	OCH2(4-CF ₃ -Ph)	O	CH3	H	
D-307	S	OCH2(2-NO ₂ -Ph)	O	CH3	H	
D-308	S	OCH2(3-NO ₂ -Ph)	O	CH3	H	
D-309	S	OCH2(4-NO ₂ -Ph)	O	CH3	H	
D-310	S	CH3	O	CH3	CH3	
D-311	S	C2H5	O	CH3	CH3	
D-312	S	n-C ₃ H ₇	O	CH3	CH3	
D-313	S	i-C ₃ H ₇	O	CH3	CH3	
D-314	S	n-C ₄ H ₉	O	CH3	CH3	
D-315	S	s-C ₄ H ₉	O	CH3	CH3	
D-316	S	i-C ₄ H ₉	O	CH3	CH3	
D-317	S	t-C ₄ H ₉	O	CH3	CH3	
D-318	S	n-C ₅ H ₁₁	O	CH3	CH3	
D-319	S	n-C ₆ H ₁₃	O	CH3	CH3	
D-320	S	CH ₂ CH=CH ₂	O	CH3	CH3	
D-321	S	CH ₂ C(CH ₃)=CH ₂	O	CH3	CH3	
D-322	S	CH ₂ C(CH ₃)=CHCH ₃	O	CH3	CH3	
D-323	S	CH ₂ CH=C(CH ₃) ₂	O	CH3	CH3	
D-324	S	CH ₂ CCl=CH ₂	O	CH3	CH3	
D-325	S	CH ₂ CH=CCl ₂	O	CH3	CH3	
D-326	S	CH ₂ CH=CHCF ₃	O	CH3	CH3	
D-327	S	CH ₂ CH=CHPh	O	CH3	CH3	
D-328	S	CH(CH ₃)CH=CH ₂	O	CH3	CH3	
D-329	S	CH ₂ CCH	O	CH3	CH3	
D-330	S	CH ₂ CCCH ₃	O	CH3	CH3	
D-331	S	CH ₂ CF ₃	O	CH3	CH3	
D-332	S	CH ₂ CH ₂ OCH ₃	O	CH3	CH3	
D-333	S	CH ₂ CH ₂ OC ₂ H ₅	O	CH3	CH3	
D-334	S	CH ₂ CH ₂ CH ₂ OCH ₃	O	CH3	CH3	
D-335	S	CH ₂ CH ₂ CH ₂ OC ₂ H ₅	O	CH3	CH3	
D-336	S	CH ₂ CH(OCH ₃) ₂	O	CH3	CH3	
D-337	S	CH ₂ CN	O	CH3	CH3	
D-338	S	C(CH ₃) ₂ CN	O	CH3	CH3	
D-339	S	C(CH ₃)(i-C ₃ H ₇)CN	O	CH3	CH3	
D-340	S	CH ₂ CO ₂ CH ₃	O	CH3	CH3	
D-341	S	CH ₂ CO ₂ C ₂ H ₅	O	CH3	CH3	
D-342	S	CH(CH ₃)CO ₂ CH ₃	O	CH3	CH3	
D-343	S	cyclo-C ₃ H ₇	O	CH3	CH3	
D-344	S	cyclo-C ₅ H ₉	O	CH3	CH3	
D-345	S	cyclo-C ₆ H ₁₁	O	CH3	CH3	

Compound	Y	R ²	R ^c	R ^d	R ^a	R ^b
D-346	S	CH2(cyclo-C3H5)	O	CH3	CH3	
D-347	S	CH2(cyclo-C5H9)	O	CH3	CH3	
D-348	S	CH2(cyclo-C6H11)	O	CH3	CH3	
D-349	S	CH2Ph	O	CH3	CH3	
D-350	S	CH2(2-Cl-Ph)	O	CH3	CH3	
D-351	S	CH2(3-Cl-Ph)	O	CH3	CH3	
D-352	S	CH2(4-Cl-Ph)	O	CH3	CH3	
D-353	S	CH2(2-CF ₃ -Ph)	O	CH3	CH3	
D-354	S	CH2(3-CF ₃ -Ph)	O	CH3	CH3	
D-355	S	CH2(4-CF ₃ -Ph)	O	CH3	CH3	
D-356	S	CH2(2-F-Ph)	O	CH3	CH3	
D-357	S	CH2(3-F-Ph)	O	CH3	CH3	
D-358	S	CH2(4-F-Ph)	O	CH3	CH3	
D-359	S	CH2(2-OMe-Ph)	O	CH3	CH3	
D-360	S	CH2(3-OMe-Ph)	O	CH3	CH3	
D-361	S	CH2(4-OMe-Ph)	O	CH3	CH3	
D-362	S	CH(CH ₃)Ph	O	CH3	CH3	
D-363	S	CH(CH ₃)(2-Cl-Ph)	O	CH3	CH3	
D-364	S	CH(CH ₃)(3-Cl-Ph)	O	CH3	CH3	
D-365	S	CH(CH ₃)(4-Cl-Ph)	O	CH3	CH3	
D-366	S	CH(CH ₃)(2-CF ₃ -Ph)	O	CH3	CH3	
D-367	S	CH(CH ₃)(3-CF ₃ -Ph)	O	CH3	CH3	
D-368	S	CH(CH ₃)(4-CF ₃ -Ph)	O	CH3	CH3	
D-369	S	Ph	O	CH3	CH3	
D-370	S	2-Cl-Ph	O	CH3	CH3	
D-371	S	3-Cl-Ph	O	CH3	CH3	
D-372	S	4-Cl-Ph	O	CH3	CH3	
D-373	S	2-CF ₃ -Ph	O	CH3	CH3	
D-374	S	3-CF ₃ -Ph	O	CH3	CH3	
D-375	S	4-CF ₃ -Ph	O	CH3	CH3	
D-376	S	2-CH ₃ O-Ph	O	CH3	CH3	
D-377	S	3-CH ₃ O-Ph	O	CH3	CH3	
D-378	S	4-CH ₃ O-Ph	O	CH3	CH3	
D-379	S	4-CF ₃ O-Ph	O	CH3	CH3	
D-380	S	4-CF ₃ CH ₂ O-Ph	O	CH3	CH3	
D-381	S	4-PhO-Ph	O	CH3	CH3	
D-382	S	4-(4-Cl-Ph)O-Ph	O	CH3	CH3	
D-383	S	4-(4-CF ₃ -Ph)O-Ph	O	CH3	CH3	
D-384	S	OCH ₃	O	CH3	CH3	
D-385	S	OC ₂ H ₅	O	CH3	CH3	
D-386	S	O-n-C ₃ H ₇	O	CH3	CH3	
D-387	S	O-i-C ₃ H ₇	O	CH3	CH3	

Compound	Y	R ²	R ^c	R ^d	R ^a	R ^b
D-388	S	O-n-C ₄ H ₉	O	CH ₃	CH ₃	
D-389	S	O-i-C ₄ H ₇	O	CH ₃	CH ₃	
D-390	S	O-sec-C ₄ H ₉	O	CH ₃	CH ₃	
D-391	S	O-t-C ₄ H ₉	O	CH ₃	CH ₃	
D-392	S	O-n-C ₅ H ₁₁	O	CH ₃	CH ₃	
D-393	S	OCH ₂ CH=CH ₂	O	CH ₃	CH ₃	
D-394	S	OCH ₂ C(CH ₃)=CH ₂	O	CH ₃	CH ₃	
D-395	S	OCH ₂ CH=CHCH ₃	O	CH ₃	CH ₃	
D-396	S	OCH ₂ CH=C(CH ₃) ₂	O	CH ₃	CH ₃	
D-397	S	OCH ₂ CCH	O	CH ₃	CH ₃	
D-398	S	OCH ₂ CCCH ₃	O	CH ₃	CH ₃	
D-399	S	OCH ₂ Ph	O	CH ₃	CH ₃	
D-400	S	OCH(CH ₃)Ph	O	CH ₃	CH ₃	
D-401	S	OCH ₂ (2-Cl-Ph)	O	CH ₃	CH ₃	
D-402	S	OCH ₂ (3-Cl-Ph)	O	CH ₃	CH ₃	
D-403	S	OCH ₂ (4-Cl-Ph)	O	CH ₃	CH ₃	
D-404	S	OCH ₂ (2-OCH ₃ -Ph)	O	CH ₃	CH ₃	
D-405	S	OCH ₂ (3-OCH ₃ -Ph)	O	CH ₃	CH ₃	
D-406	S	OCH ₂ (4-OCH ₃ -Ph)	O	CH ₃	CH ₃	
D-407	S	OCH ₂ (2-CF ₃ -Ph)	O	CH ₃	CH ₃	
D-408	S	OCH ₂ (3-CF ₃ -Ph)	O	CH ₃	CH ₃	
D-409	S	OCH ₂ (4-CF ₃ -Ph)	O	CH ₃	CH ₃	
D-410	S	OCH ₂ (2-NO ₂ -Ph)	O	CH ₃	CH ₃	
D-411	S	OCH ₂ (3-NO ₂ -Ph)	O	CH ₃	CH ₃	
D-412	S	OCH ₂ (4-NO ₂ -Ph)	O	CH ₃	CH ₃	
D-413	S	CH ₃	O	C ₂ H ₅	H	
D-414	S	C ₂ H ₅	O	C ₂ H ₅	H	
D-415	S	n-C ₃ H ₇	O	C ₂ H ₅	H	
D-416	S	i-C ₃ H ₇	O	C ₂ H ₅	H	
D-417	S	n-C ₄ H ₉	O	C ₂ H ₅	H	
D-418	S	s-C ₄ H ₉	O	C ₂ H ₅	H	
D-419	S	i-C ₄ H ₉	O	C ₂ H ₅	H	
D-420	S	t-C ₄ H ₉	O	C ₂ H ₅	H	
D-421	S	n-C ₅ H ₁₁	O	C ₂ H ₅	H	
D-422	S	n-C ₆ H ₁₃	O	C ₂ H ₅	H	
D-423	S	CH ₂ CH=CH ₂	O	C ₂ H ₅	H	
D-424	S	CH ₂ C(CH ₃)=CH ₂	O	C ₂ H ₅	H	
D-425	S	CH ₂ C(CH ₃)=CHCH ₃	O	C ₂ H ₅	H	
D-426	S	CH ₂ CH=C(CH ₃) ₂	O	C ₂ H ₅	H	
D-427	S	CH ₂ CCl=CH ₂	O	C ₂ H ₅	H	
D-428	S	CH ₂ CH=CCl ₂	O	C ₂ H ₅	H	
D-429	S	CH ₂ CH=CHCF ₃	O	C ₂ H ₅	H	

Compound	Y	R ²	R ^c	R ^d	R ^a	R ^b
D-430	S	CH ₂ CH=CHPh	O	C ₂ H ₅	H	
D-431	S	CH(CH ₃)CH=CH ₂	O	C ₂ H ₅	H	
D-432	S	CH ₂ CCH	O	C ₂ H ₅	H	
D-433	S	CH ₂ CCCH ₃	O	C ₂ H ₅	H	
D-434	S	CH ₂ CF ₃	O	C ₂ H ₅	H	
D-435	S	CH ₂ CH ₂ OCH ₃	O	C ₂ H ₅	H	
D-436	S	CH ₂ CH ₂ OC ₂ H ₅	O	C ₂ H ₅	H	
D-437	S	CH ₂ CH ₂ CH ₂ OCH ₃	O	C ₂ H ₅	H	
D-438	S	CH ₂ CH ₂ CH ₂ OC ₂ H ₅	O	C ₂ H ₅	H	
D-439	S	CH ₂ CH(OCH ₃) ₂	O	C ₂ H ₅	H	
D-440	S	CH ₂ CN	O	C ₂ H ₅	H	
D-441	S	C(CH ₃) ₂ CN	O	C ₂ H ₅	H	
D-442	S	C(CH ₃)(i-C ₃ H ₇)CN	O	C ₂ H ₅	H	
D-443	S	CH ₂ CO ₂ CH ₃	O	C ₂ H ₅	H	
D-444	S	CH ₂ CO ₂ C ₂ H ₅	O	C ₂ H ₅	H	
D-445	S	CH(CH ₃)CO ₂ CH ₃	O	C ₂ H ₅	H	
D-446	S	cyclo-C ₃ H ₇	O	C ₂ H ₅	H	
D-447	S	cyclo-C ₅ H ₉	O	C ₂ H ₅	H	
D-448	S	cyclo-C ₆ H ₁₁	O	C ₂ H ₅	H	
D-449	S	CH ₂ (cyclo-C ₃ H ₅)	O	C ₂ H ₅	H	
D-450	S	CH ₂ (cyclo-C ₅ H ₉)	O	C ₂ H ₅	H	
D-451	S	CH ₂ (cyclo-C ₆ H ₁₁)	O	C ₂ H ₅	H	
D-452	S	CH ₂ Ph	O	C ₂ H ₅	H	
D-453	S	CH ₂ (2-Cl-Ph)	O	C ₂ H ₅	H	
D-454	S	CH ₂ (3-Cl-Ph)	O	C ₂ H ₅	H	
D-455	S	CH ₂ (4-Cl-Ph)	O	C ₂ H ₅	H	
D-456	S	CH ₂ (2-CF ₃ -Ph)	O	C ₂ H ₅	H	
D-457	S	CH ₂ (3-CF ₃ -Ph)	O	C ₂ H ₅	H	
D-458	S	CH ₂ (4-CF ₃ -Ph)	O	C ₂ H ₅	H	
D-459	S	CH ₂ (2-F-Ph)	O	C ₂ H ₅	H	
D-460	S	CH ₂ (3-F-Ph)	O	C ₂ H ₅	H	
D-461	S	CH ₂ (4-F-Ph)	O	C ₂ H ₅	H	
D-462	S	CH ₂ (2-OMe-Ph)	O	C ₂ H ₅	H	
D-463	S	CH ₂ (3-OMe-Ph)	O	C ₂ H ₅	H	
D-464	S	CH ₂ (4-OMe-Ph)	O	C ₂ H ₅	H	
D-465	S	CH(CH ₃)Ph	O	C ₂ H ₅	H	
D-466	S	CH(CH ₃)(2-Cl-Ph)	O	C ₂ H ₅	H	
D-467	S	CH(CH ₃)(3-Cl-Ph)	O	C ₂ H ₅	H	
D-468	S	CH(CH ₃)(4-Cl-Ph)	O	C ₂ H ₅	H	
D-469	S	CH(CH ₃)(2-CF ₃ -Ph)	O	C ₂ H ₅	H	
D-470	S	CH(CH ₃)(3-CF ₃ -Ph)	O	C ₂ H ₅	H	
D-471	S	CH(CH ₃)(4-CF ₃ -Ph)	O	C ₂ H ₅	H	

Compound	Y	R ²	R ^c	R ^d	R ^a	R ^b
D-472	S	Ph		O	C2H5	H
D-473	S	2-Cl-Ph		O	C2H5	H
D-474	S	3-Cl-Ph		O	C2H5	H
D-475	S	4-Cl-Ph		O	C2H5	H
D-476	S	2-CF ₃ -Ph		O	C2H5	H
D-477	S	3-CF ₃ -Ph		O	C2H5	H
D-478	S	4-CF ₃ -Ph		O	C2H5	H
D-479	S	2-CH ₃ O-Ph		O	C2H5	H
D-480	S	3-CH ₃ O-Ph		O	C2H5	H
D-481	S	4-CH ₃ O-Ph		O	C2H5	H
D-482	S	4-CF ₃ O-Ph		O	C2H5	H
D-483	S	4-CF ₃ CH ₂ O-Ph		O	C2H5	H
D-484	S	4-PhO-Ph		O	C2H5	H
D-485	S	4-(4-Cl-Ph)O-Ph		O	C2H5	H
D-486	S	4-(4-CF ₃ -Ph)O-Ph		O	C2H5	H
D-487	S	OCH ₃		O	C2H5	H
D-488	S	OC ₂ H ₅		O	C2H5	H
D-489	S	O-n-C ₃ H ₇		O	C2H5	H
D-490	S	O-i-C ₃ H ₇		O	C2H5	H
D-491	S	O-n-C ₄ H ₉		O	C2H5	H
D-492	S	O-i-C ₄ H ₉		O	C2H5	H
D-493	S	O-sec-C ₄ H ₉		O	C2H5	H
D-494	S	O-t-C ₄ H ₉		O	C2H5	H
D-495	S	O-n-C ₅ H ₁₁		O	C2H5	H
D-496	S	OCH ₂ CH=CH ₂		O	C2H5	H
D-497	S	OCH ₂ C(CH ₃)=CH ₂		O	C2H5	H
D-498	S	OCH ₂ CH=CHCH ₃		O	C2H5	H
D-499	S	OCH ₂ CH=C(CH ₃) ₂		O	C2H5	H
D-500	S	OCH ₂ CCH		O	C2H5	H
D-501	S	OCH ₂ CCCH ₃		O	C2H5	H
D-502	S	OCH ₂ Ph		O	C2H5	H
D-503	S	OCH(CH ₃)Ph		O	C2H5	H
D-504	S	OCH ₂ (2-Cl-Ph)		O	C2H5	H
D-505	S	OCH ₂ (3-Cl-Ph)		O	C2H5	H
D-506	S	OCH ₂ (4-Cl-Ph)		O	C2H5	H
D-507	S	OCH ₂ (2-OCH ₃ -Ph)		O	C2H5	H
D-508	S	OCH ₂ (3-OCH ₃ -Ph)		O	C2H5	H
D-509	S	OCH ₂ (4-OCH ₃ -Ph)		O	C2H5	H
D-510	S	OCH ₂ (2-CF ₃ -Ph)		O	C2H5	H
D-511	S	OCH ₂ (3-CF ₃ -Ph)		O	C2H5	H
D-512	S	OCH ₂ (4-CF ₃ -Ph)		O	C2H5	H
D-513	S	OCH ₂ (2-NO ₂ -Ph)		O	C2H5	H

Compound	Y	R ²	R ^c	R ^d	R ^a	R ^b
D-514	S	OCH2(3-NO ₂ -Ph)	O	C2H ₅	H	
D-515	S	OCH2(4-NO ₂ -Ph)	O	C2H ₅	H	
D-516	S	CH ₃	O	i-C ₃ H ₇	H	
D-517	S	C ₂ H ₅	O	i-C ₃ H ₇	H	
D-518	S	n-C ₃ H ₇	O	i-C ₃ H ₇	H	
D-519	S	i-C ₃ H ₇	O	i-C ₃ H ₇	H	
D-520	S	n-C ₄ H ₉	O	i-C ₃ H ₇	H	
D-521	S	s-C ₄ H ₉	O	i-C ₃ H ₇	H	
D-522	S	i-C ₄ H ₉	O	i-C ₃ H ₇	H	
D-523	S	t-C ₄ H ₉	O	i-C ₃ H ₇	H	
D-524	S	n-C ₅ H ₁₁	O	i-C ₃ H ₇	H	
D-525	S	n-C ₆ H ₁₃	O	i-C ₃ H ₇	H	
D-526	S	CH ₂ CH=CH ₂	O	i-C ₃ H ₇	H	
D-527	S	CH ₂ C(CH ₃)=CH ₂	O	i-C ₃ H ₇	H	
D-528	S	CH ₂ C(CH ₃)=CHCH ₃	O	i-C ₃ H ₇	H	
D-529	S	CH ₂ CH=C(CH ₃) ₂	O	i-C ₃ H ₇	H	
D-530	S	CH ₂ CCl=CH ₂	O	i-C ₃ H ₇	H	
D-531	S	CH ₂ CH=CCl ₂	O	i-C ₃ H ₇	H	
D-532	S	CH ₂ CH=CHCF ₃	O	i-C ₃ H ₇	H	
D-533	S	CH ₂ CH=CHPh	O	i-C ₃ H ₇	H	
D-534	S	CH(CH ₃)CH=CH ₂	O	i-C ₃ H ₇	H	
D-535	S	CH ₂ CCH	O	i-C ₃ H ₇	H	
D-536	S	CH ₂ CCCH ₃	O	i-C ₃ H ₇	H	
D-537	S	CH ₂ CF ₃	O	i-C ₃ H ₇	H	
D-538	S	CH ₂ CH ₂ OCH ₃	O	i-C ₃ H ₇	H	
D-539	S	CH ₂ CH ₂ OCH ₂ H ₅	O	i-C ₃ H ₇	H	
D-540	S	CH ₂ CH ₂ CH ₂ OCH ₃	O	i-C ₃ H ₇	H	
D-541	S	CH ₂ CH ₂ CH ₂ OCH ₂ H ₅	O	i-C ₃ H ₇	H	
D-542	S	CH ₂ CH(OCH ₃) ₂	O	i-C ₃ H ₇	H	
D-543	S	CH ₂ CN	O	i-C ₃ H ₇	H	
D-544	S	C(CH ₃) ₂ CN	O	i-C ₃ H ₇	H	
D-545	S	C(CH ₃)(i-C ₃ H ₇)CN	O	i-C ₃ H ₇	H	
D-546	S	CH ₂ CO ₂ CH ₃	O	i-C ₃ H ₇	H	
D-547	S	CH ₂ CO ₂ C ₂ H ₅	O	i-C ₃ H ₇	H	
D-548	S	CH(CH ₃)CO ₂ CH ₃	O	i-C ₃ H ₇	H	
D-549	S	cyclo-C ₃ H ₇	O	i-C ₃ H ₇	H	
D-550	S	cyclo-C ₅ H ₉	O	i-C ₃ H ₇	H	
D-551	S	cyclo-C ₆ H ₁₁	O	i-C ₃ H ₇	H	
D-552	S	CH ₂ (cyclo-C ₃ H ₅)	O	i-C ₃ H ₇	H	
D-553	S	CH ₂ (cyclo-C ₅ H ₉)	O	i-C ₃ H ₇	H	
D-554	S	CH ₂ (cyclo-C ₆ H ₁₁)	O	i-C ₃ H ₇	H	
D-555	S	CH ₂ Ph	O	i-C ₃ H ₇	H	

Compound	Y	R ²	R ^c	R ^d	R ^a	R ^b
D-556	S	CH2(2-Cl-Ph)	O	i-C3H7	H	
D-557	S	CH2(3-Cl-Ph)	O	i-C3H7	H	
D-558	S	CH2(4-Cl-Ph)	O	i-C3H7	H	
D-559	S	CH2(2-CF ₃ -Ph)	O	i-C3H7	H	
D-560	S	CH2(3-CF ₃ -Ph)	O	i-C3H7	H	
D-561	S	CH2(4-CF ₃ -Ph)	O	i-C3H7	H	
D-562	S	CH2(2-F-Ph)	O	i-C3H7	H	
D-563	S	CH2(3-F-Ph)	O	i-C3H7	H	
D-564	S	CH2(4-F-Ph)	O	i-C3H7	H	
D-565	S	CH2(2-OMe-Ph)	O	i-C3H7	H	
D-566	S	CH2(3-OMe-Ph)	O	i-C3H7	H	
D-567	S	CH2(4-OMe-Ph)	O	i-C3H7	H	
D-568	S	CH(CH ₃)Ph	O	i-C3H7	H	
D-569	S	CH(CH ₃)(2-Cl-Ph)	O	i-C3H7	H	
D-570	S	CH(CH ₃)(3-Cl-Ph)	O	i-C3H7	H	
D-571	S	CH(CH ₃)(4-Cl-Ph)	O	i-C3H7	H	
D-572	S	CH(CH ₃)(2-CF ₃ -Ph)	O	i-C3H7	H	
D-573	S	CH(CH ₃)(3-CF ₃ -Ph)	O	i-C3H7	H	
D-574	S	CH(CH ₃)(4-CF ₃ -Ph)	O	i-C3H7	H	
D-575	S	Ph	O	i-C3H7	H	
D-576	S	2-Cl-Ph	O	i-C3H7	H	
D-577	S	3-Cl-Ph	O	i-C3H7	H	
D-578	S	4-Cl-Ph	O	i-C3H7	H	
D-579	S	2-CF ₃ -Ph	O	i-C3H7	H	
D-580	S	3-CF ₃ -Ph	O	i-C3H7	H	
D-581	S	4-CF ₃ -Ph	O	i-C3H7	H	
D-582	S	2-CH ₃ O-Ph	O	i-C3H7	H	
D-583	S	3-CH ₃ O-Ph	O	i-C3H7	H	
D-584	S	4-CH ₃ O-Ph	O	i-C3H7	H	
D-585	S	4-CF ₃ O-Ph	O	i-C3H7	H	
D-586	S	4-CF ₃ CH ₂ O-Ph	O	i-C3H7	H	
D-587	S	4-PhO-Ph	O	i-C3H7	H	
D-588	S	4-(4-Cl-Ph)O-Ph	O	i-C3H7	H	
D-589	S	4-(4-CF ₃ -Ph)O-Ph	O	i-C3H7	H	
D-590	S	OCH ₃	O	i-C3H7	H	
D-591	S	OC ₂ H ₅	O	i-C3H7	H	
D-592	S	O-n-C ₃ H ₇	O	i-C3H7	H	
D-593	S	O-i-C ₃ H ₇	O	i-C3H7	H	
D-594	S	O-n-C ₄ H ₉	O	i-C3H7	H	
D-595	S	O-i-C ₄ H ₇	O	i-C3H7	H	
D-596	S	O-sec-C ₄ H ₉	O	i-C3H7	H	
D-597	S	O-t-C ₄ H ₉	O	i-C3H7	H	

Compound	Y	R ²	R ^c	R ^d	R ^a	R ^b
D-598	S	O-n-C5H11	O	i-C3H7	H	
D-599	S	OCH2CH=CH2	O	i-C3H7	H	
D-600	S	OCH2C(CH3)=CH2	O	i-C3H7	H	
D-601	S	OCH2CH=CHCH3	O	i-C3H7	H	
D-602	S	OCH2CH=C(CH3)2	O	i-C3H7	H	
D-603	S	OCH2CCH	O	i-C3H7	H	
D-604	S	OCH2CCCH3	O	i-C3H7	H	
D-605	S	OCH2Ph	O	i-C3H7	H	
D-606	S	OCH(CH3)Ph	O	i-C3H7	H	
D-607	S	OCH2(2-Cl-Ph)	O	i-C3H7	H	
D-608	S	OCH2(3-Cl-Ph)	O	i-C3H7	H	
D-609	S	OCH2(4-Cl-Ph)	O	i-C3H7	H	
D-610	S	OCH2(2-OCH3-Ph)	O	i-C3H7	H	
D-611	S	OCH2(3-OCH3-Ph)	O	i-C3H7	H	
D-612	S	OCH2(4-OCH3-Ph)	O	i-C3H7	H	
D-613	S	OCH2(2-CF3-Ph)	O	i-C3H7	H	
D-614	S	OCH2(3-CF3-Ph)	O	i-C3H7	H	
D-615	S	OCH2(4-CF3-Ph)	O	i-C3H7	H	
D-616	S	OCH2(2-NO2-Ph)	O	i-C3H7	H	
D-617	S	OCH2(3-NO2-Ph)	O	i-C3H7	H	
D-618	S	OCH2(4-NO2-Ph)	O	i-C3H7	H	
D-619	S	CH3	O	Ph	H	
D-620	S	C2H5	O	Ph	H	
D-621	S	n-C3H7	O	Ph	H	
D-622	S	i-C3H7	O	Ph	H	
D-623	S	n-C4H9	O	Ph	H	
D-624	S	s-C4H9	O	Ph	H	
D-625	S	i-C4H9	O	Ph	H	
D-626	S	t-C4H9	O	Ph	H	
D-627	S	n-C5H11	O	Ph	H	
D-628	S	n-C6H13	O	Ph	H	
D-629	S	CH2CH=CH2	O	Ph	H	
D-630	S	CH2C(CH3)=CH2	O	Ph	H	
D-631	S	CH2C(CH3)=CHCH3	O	Ph	H	
D-632	S	CH2CH=C(CH3)2	O	Ph	H	
D-633	S	CH2CCl=CH2	O	Ph	H	
D-634	S	CH2CH=CCl2	O	Ph	H	
D-635	S	CH2CH=CHCF3	O	Ph	H	
D-636	S	CH2CH=CHPh	O	Ph	H	
D-637	S	CH(CH3)CH=CH2	O	Ph	H	
D-638	S	CH2CCH	O	Ph	H	
D-639	S	CH2CCCH3	O	Ph	H	

Compound	Y	R ²	R ^c	R ^d	R ^a	R ^b
D-640	S	CH2CF3		O	Ph	H
D-641	S	CH2CH2OCH3		O	Ph	H
D-642	S	CH2CH2OC2H5		O	Ph	H
D-643	S	CH2CH2CH2OCH3		O	Ph	H
D-644	S	CH2CH2CH2OC2H5		O	Ph	H
D-645	S	CH2CH(OCH3)2		O	Ph	H
D-646	S	CH2CN		O	Ph	H
D-647	S	C(CH3)2CN		O	Ph	H
D-648	S	C(CH3)(i-C3H7)CN		O	Ph	H
D-649	S	CH2CO2CH3		O	Ph	H
D-650	S	CH2CO2C2H5		O	Ph	H
D-651	S	CH(CH3)CO2CH3		O	Ph	H
D-652	S	cyclo-C3H7		O	Ph	H
D-653	S	cyclo-C5H9		O	Ph	H
D-654	S	cyclo-C6H11		O	Ph	H
D-655	S	CH2(cyclo-C3H5)		O	Ph	H
D-656	S	CH2(cyclo-C5H9)		O	Ph	H
D-657	S	CH2(cyclo-C6H11)		O	Ph	H
D-658	S	CH2Ph		O	Ph	H
D-659	S	CH2(2-Cl-Ph)		O	Ph	H
D-660	S	CH2(3-Cl-Ph)		O	Ph	H
D-661	S	CH2(4-Cl-Ph)		O	Ph	H
D-662	S	CH2(2-CF3-Ph)		O	Ph	H
D-663	S	CH2(3-CF3-Ph)		O	Ph	H
D-664	S	CH2(4-CF3-Ph)		O	Ph	H
D-665	S	CH2(2-F-Ph)		O	Ph	H
D-666	S	CH2(3-F-Ph)		O	Ph	H
D-667	S	CH2(4-F-Ph)		O	Ph	H
D-668	S	CH2(2-OMe-Ph)		O	Ph	H
D-669	S	CH2(3-OMe-Ph)		O	Ph	H
D-670	S	CH2(4-OMe-Ph)		O	Ph	H
D-671	S	CH(CH3)Ph		O	Ph	H
D-672	S	CH(CH3)(2-Cl-Ph)		O	Ph	H
D-673	S	CH(CH3)(3-Cl-Ph)		O	Ph	H
D-674	S	CH(CH3)(4-Cl-Ph)		O	Ph	H
D-675	S	CH(CH3)(2-CF3-Ph)		O	Ph	H
D-676	S	CH(CH3)(3-CF3-Ph)		O	Ph	H
D-677	S	CH(CH3)(4-CF3-Ph)		O	Ph	H
D-678	S	Ph		O	Ph	H
D-679	S	2-Cl-Ph		O	Ph	H
D-680	S	3-Cl-Ph		O	Ph	H
D-681	S	4-Cl-Ph		O	Ph	H

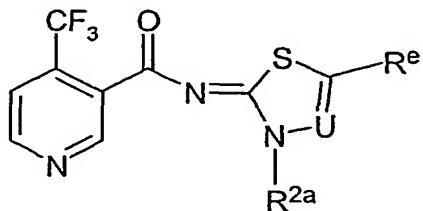
Compound	Y	R ²	R ^c	R ^d	R ^a	R ^b
D-682	S	2-CF ₃ -Ph		O	Ph	H
D-683	S	3-CF ₃ -Ph		O	Ph	H
D-684	S	4-CF ₃ -Ph		O	Ph	H
D-685	S	2-CH ₃ O-Ph		O	Ph	H
D-686	S	3-CH ₃ O-Ph		O	Ph	H
D-687	S	4-CH ₃ O-Ph		O	Ph	H
D-688	S	4-CF ₃ O-Ph		O	Ph	H
D-689	S	4-CF ₃ CH ₂ O-Ph		O	Ph	H
D-690	S	4-PhO-Ph		O	Ph	H
D-691	S	4-(4-Cl-Ph)O-Ph		O	Ph	H
D-692	S	4-(4-CF ₃ -Ph)O-Ph		O	Ph	H
D-693	S	OCH ₃		O	Ph	H
D-694	S	OC ₂ H ₅		O	Ph	H
D-695	S	O-n-C ₃ H ₇		O	Ph	H
D-696	S	O-i-C ₃ H ₇		O	Ph	H
D-697	S	O-n-C ₄ H ₉		O	Ph	H
D-698	S	O-i-C ₄ H ₇		O	Ph	H
D-699	S	O-sec-C ₄ H ₉		O	Ph	H
D-700	S	O-t-C ₄ H ₉		O	Ph	H
D-701	S	O-n-C ₅ H ₁₁		O	Ph	H
D-702	S	OCH ₂ CH=CH ₂		O	Ph	H
D-703	S	OCH ₂ C(CH ₃)=CH ₂		O	Ph	H
D-704	S	OCH ₂ CH=CHCH ₃		O	Ph	H
D-705	S	OCH ₂ CH=C(CH ₃) ₂		O	Ph	H
D-706	S	OCH ₂ CCH		O	Ph	H
D-707	S	OCH ₂ CCCH ₃		O	Ph	H
D-708	S	OCH ₂ Ph		O	Ph	H
D-709	S	OCH(CH ₃)Ph		O	Ph	H
D-710	S	OCH ₂ (2-Cl-Ph)		O	Ph	H
D-711	S	OCH ₂ (3-Cl-Ph)		O	Ph	H
D-712	S	OCH ₂ (4-Cl-Ph)		O	Ph	H
D-713	S	OCH ₂ (2-OCH ₃ -Ph)		O	Ph	H
D-714	S	OCH ₂ (3-OCH ₃ -Ph)		O	Ph	H
D-715	S	OCH ₂ (4-OCH ₃ -Ph)		O	Ph	H
D-716	S	OCH ₂ (2-CF ₃ -Ph)		O	Ph	H
D-717	S	OCH ₂ (3-CF ₃ -Ph)		O	Ph	H
D-718	S	OCH ₂ (4-CF ₃ -Ph)		O	Ph	H
D-719	S	OCH ₂ (2-NO ₂ -Ph)		O	Ph	H
D-720	S	OCH ₂ (3-NO ₂ -Ph)		O	Ph	H
D-721	S	OCH ₂ (4-NO ₂ -Ph)		O	Ph	H
D-722	S	CH ₃	H	H	OC ₂ H ₅	H
D-723	S	C ₂ H ₅	H	H	OC ₂ H ₅	H

Compound	Y	R ²	R ^c	R ^d	R ^a	R ^b
D-724	S	n-C ₃ H ₇	H	H	OC ₂ H ₅	H
D-725	S	i-C ₃ H ₇	H	H	OC ₂ H ₅	H
D-726	S	n-C ₄ H ₉	H	H	OC ₂ H ₅	H
D-727	S	s-C ₄ H ₉	H	H	OC ₂ H ₅	H
D-728	S	i-C ₄ H ₉	H	H	OC ₂ H ₅	H
D-729	S	t-C ₄ H ₉	H	H	OC ₂ H ₅	H
D-730	S	n-C ₅ H ₁₁	H	H	OC ₂ H ₅	H
D-731	S	n-C ₆ H ₁₃	H	H	OC ₂ H ₅	H
D-732	S	CH ₂ CH=CH ₂	H	H	OC ₂ H ₅	H
D-733	S	CH ₂ C(CH ₃)=CH ₂	H	H	OC ₂ H ₅	H
D-734	S	CH ₂ C(CH ₃)=CHCH ₃	H	H	OC ₂ H ₅	H
D-735	S	CH ₂ CH=C(CH ₃) ₂	H	H	OC ₂ H ₅	H
D-736	S	CH ₂ CCl=CH ₂	H	H	OC ₂ H ₅	H
D-737	S	CH ₂ CH=CCl ₂	H	H	OC ₂ H ₅	H
D-738	S	CH ₂ CH=CHCF ₃	H	H	OC ₂ H ₅	H
D-739	S	CH ₂ CH=CHPh	H	H	OC ₂ H ₅	H
D-740	S	CH(CH ₃)CH=CH ₂	H	H	OC ₂ H ₅	H
D-741	S	CH ₂ CCH	H	H	OC ₂ H ₅	H
D-742	S	CH ₂ CCCH ₃	H	H	OC ₂ H ₅	H
D-743	S	CH ₂ CF ₃	H	H	OC ₂ H ₅	H
D-744	S	CH ₂ CH ₂ OCH ₃	H	H	OC ₂ H ₅	H
D-745	S	CH ₂ CH ₂ OC ₂ H ₅	H	H	OC ₂ H ₅	H
D-746	S	CH ₂ CH ₂ CH ₂ OCH ₃	H	H	OC ₂ H ₅	H
D-747	S	CH ₂ CH ₂ CH ₂ OC ₂ H ₅	H	H	OC ₂ H ₅	H
D-748	S	CH ₂ CH(OCH ₃) ₂	H	H	OC ₂ H ₅	H
D-749	S	CH ₂ CN	H	H	OC ₂ H ₅	H
D-750	S	C(CH ₃) ₂ CN	H	H	OC ₂ H ₅	H
D-751	S	C(CH ₃)(i-C ₃ H ₇)CN	H	H	OC ₂ H ₅	H
D-752	S	CH ₂ CO ₂ CH ₃	H	H	OC ₂ H ₅	H
D-753	S	CH ₂ CO ₂ C ₂ H ₅	H	H	OC ₂ H ₅	H
D-754	S	CH(CH ₃)CO ₂ CH ₃	H	H	OC ₂ H ₅	H
D-755	S	cyclo-C ₃ H ₇	H	H	OC ₂ H ₅	H
D-756	S	cyclo-C ₅ H ₉	H	H	OC ₂ H ₅	H
D-757	S	cyclo-C ₆ H ₁₁	H	H	OC ₂ H ₅	H
D-758	S	CH ₂ (cyclo-C ₃ H ₅)	H	H	OC ₂ H ₅	H
D-759	S	CH ₂ (cyclo-C ₅ H ₉)	H	H	OC ₂ H ₅	H
D-760	S	CH ₂ (cyclo-C ₆ H ₁₁)	H	H	OC ₂ H ₅	H
D-761	S	CH ₂ Ph	H	H	OC ₂ H ₅	H
D-762	S	CH ₂ (2-Cl-Ph)	H	H	OC ₂ H ₅	H
D-763	S	CH ₂ (3-Cl-Ph)	H	H	OC ₂ H ₅	H
D-764	S	CH ₂ (4-Cl-Ph)	H	H	OC ₂ H ₅	H
D-765	S	CH ₂ (2-CF ₃ -Ph)	H	H	OC ₂ H ₅	H

Compound	Y	R ²	R ^c	R ^d	R ^a	R ^b
D-766	S	CH2(3-CF ₃ -Ph)	H	H	OC ₂ H ₅	H
D-767	S	CH2(4-CF ₃ -Ph)	H	H	OC ₂ H ₅	H
D-768	S	CH2(2-F-Ph)	H	H	OC ₂ H ₅	H
D-769	S	CH2(3-F-Ph)	H	H	OC ₂ H ₅	H
D-770	S	CH2(4-F-Ph)	H	H	OC ₂ H ₅	H
D-771	S	CH2(2-OMe-Ph)	H	H	OC ₂ H ₅	H
D-772	S	CH2(3-OMe-Ph)	H	H	OC ₂ H ₅	H
D-773	S	CH2(4-OMe-Ph)	H	H	OC ₂ H ₅	H
D-774	S	CH(CH ₃)Ph	H	H	OC ₂ H ₅	H
D-775	S	CH(CH ₃)(2-Cl-Ph)	H	H	OC ₂ H ₅	H
D-776	S	CH(CH ₃)(3-Cl-Ph)	H	H	OC ₂ H ₅	H
D-777	S	CH(CH ₃)(4-Cl-Ph)	H	H	OC ₂ H ₅	H
D-778	S	CH(CH ₃)(2-CF ₃ -Ph)	H	H	OC ₂ H ₅	H
D-779	S	CH(CH ₃)(3-CF ₃ -Ph)	H	H	OC ₂ H ₅	H
D-780	S	CH(CH ₃)(4-CF ₃ -Ph)	H	H	OC ₂ H ₅	H
D-781	S	Ph	H	H	OC ₂ H ₅	H
D-782	S	2-Cl-Ph	H	H	OC ₂ H ₅	H
D-783	S	3-Cl-Ph	H	H	OC ₂ H ₅	H
D-784	S	4-Cl-Ph	H	H	OC ₂ H ₅	H
D-785	S	2-CF ₃ -Ph	H	H	OC ₂ H ₅	H
D-786	S	3-CF ₃ -Ph	H	H	OC ₂ H ₅	H
D-787	S	4-CF ₃ -Ph	H	H	OC ₂ H ₅	H
D-788	S	2-CH ₃ O-Ph	H	H	OC ₂ H ₅	H
D-789	S	3-CH ₃ O-Ph	H	H	OC ₂ H ₅	H
D-790	S	4-CH ₃ O-Ph	H	H	OC ₂ H ₅	H
D-791	S	4-CF ₃ O-Ph	H	H	OC ₂ H ₅	H
D-792	S	4-CF ₃ CH ₂ O-Ph	H	H	OC ₂ H ₅	H
D-793	S	4-PhO-Ph	H	H	OC ₂ H ₅	H
D-794	S	4-(4-Cl-Ph)O-Ph	H	H	OC ₂ H ₅	H
D-795	S	4-(4-CF ₃ -Ph)O-Ph	H	H	OC ₂ H ₅	H
D-796	S	OCH ₃	H	H	OC ₂ H ₅	H
D-797	S	OC ₂ H ₅	H	H	OC ₂ H ₅	H
D-798	S	O-n-C ₃ H ₇	H	H	OC ₂ H ₅	H
D-799	S	O-i-C ₃ H ₇	H	H	OC ₂ H ₅	H
D-800	S	O-n-C ₄ H ₉	H	H	OC ₂ H ₅	H
D-801	S	O-i-C ₄ H ₉	H	H	OC ₂ H ₅	H
D-802	S	O-sec-C ₄ H ₉	H	H	OC ₂ H ₅	H
D-803	S	O-t-C ₄ H ₉	H	H	OC ₂ H ₅	H
D-804	S	O-n-C ₅ H ₁₁	H	H	OC ₂ H ₅	H
D-805	S	OCH ₂ CH=CH ₂	H	H	OC ₂ H ₅	H
D-806	S	OCH ₂ C(CH ₃)=CH ₂	H	H	OC ₂ H ₅	H
D-807	S	OCH ₂ CH=CHCH ₃	H	H	OC ₂ H ₅	H

Compound	Y	R ²	R ^c	R ^d	R ^a	R ^b
D-808	S	OCH2CH=C(CH ₃) ₂	H	H	OC ₂ H ₅	H
D-809	S	OCH ₂ CCH	H	H	OC ₂ H ₅	H
D-810	S	OCH ₂ CCCH ₃	H	H	OC ₂ H ₅	H
D-811	S	OCH ₂ Ph	H	H	OC ₂ H ₅	H
D-812	S	OCH(CH ₃)Ph	H	H	OC ₂ H ₅	H
D-813	S	OCH ₂ (2-Cl-Ph)	H	H	OC ₂ H ₅	H
D-814	S	OCH ₂ (3-Cl-Ph)	H	H	OC ₂ H ₅	H
D-815	S	OCH ₂ (4-Cl-Ph)	H	H	OC ₂ H ₅	H
D-816	S	OCH ₂ (2-OCH ₃ -Ph)	H	H	OC ₂ H ₅	H
D-817	S	OCH ₂ (3-OCH ₃ -Ph)	H	H	OC ₂ H ₅	H
D-818	S	OCH ₂ (4-OCH ₃ -Ph)	H	H	OC ₂ H ₅	H
D-819	S	OCH ₂ (2-CF ₃ -Ph)	H	H	OC ₂ H ₅	H
D-820	S	OCH ₂ (3-CF ₃ -Ph)	H	H	OC ₂ H ₅	H
D-821	S	OCH ₂ (4-CF ₃ -Ph)	H	H	OC ₂ H ₅	H
D-822	S	OCH ₂ (2-NO ₂ -Ph)	H	H	OC ₂ H ₅	H
D-823	S	OCH ₂ (3-NO ₂ -Ph)	H	H	OC ₂ H ₅	H
D-824	S	OCH ₂ (4-NO ₂ -Ph)	H	H	OC ₂ H ₅	H
D-825	O	H	H	H	H	H
D-826	O	CH ₃	H	H	H	H
D-827	O	C ₂ H ₅	H	H	H	H
D-828	O	n-C ₃ H ₇	H	H	H	H
D-829	O	i-C ₃ H ₇	H	H	H	H
D-830	O	n-C ₄ H ₉	H	H	H	H
D-831	O	s-C ₄ H ₉	H	H	H	H
D-832	O	i-C ₄ H ₉	H	H	H	H
D-833	O	t-C ₄ H ₉	H	H	H	H
D-834	O	CH ₂ Ph	H	H	H	H
D-835	O	Ph	H	H	H	H
D-836	S	H	C ₂ H ₅	H	O	
D-837	S	H	i-C ₃ H ₇	CH ₃	NH	
D-838	S	H	CH ₃	CH ₃	NH	

Table 5
Compounds of formula (Ie):



(1e)

Compound	U	R ^{2a}	R ^e
E-1	N	CH3	H
E-2	N	C2H5	H
E-3	N	n-C3H7	H
E-4	N	i-C3H7	H
E-5	N	n-C4H9	H
E-6	N	s-C4H9	H
E-7	N	i-C4H9	H
E-8	N	t-C4H9	H
E-9	N	n-C5H11	H
E-10	N	n-C6H13	H
E-11	N	CH2CH=CH2	H
E-12	N	CH2C(CH3)=CH2	H
E-13	N	CH2C(CH3)=CHCH3	H
E-14	N	CH2CH=C(CH3)2	H
E-15	N	CH2CCl=CH2	H
E-16	N	CH2CH=CCl2	H
E-17	N	CH2CH=CHCF3	H
E-18	N	CH2CH=CHPh	H
E-19	N	CH(CH3)CH=CH2	H
E-20	N	CH2CCH	H
E-21	N	CH2CCCH3	H
E-22	N	CH2CF3	H
E-23	N	CH2CH2OCH3	H
E-24	N	CH2CH2OC2H5	H
E-25	N	CH2CH2CH2OCH3	H
E-26	N	CH2CH2CH2OC2H5	H
E-27	N	CH2CH(OCH3)2	H
E-28	N	CH2CN	H
E-29	N	CH2CO2H	H
E-30	N	CH2CO2CH3	H
E-31	N	CH2CO2C2H5	H
E-32	N	CH(CH3)CO2CH3	H
E-33	N	cyclo-C3H7	H
E-34	N	cyclo-C5H9	H
E-35	N	cyclo-C6H11	H
E-36	N	CH2(cyclo-C3H5)	H
E-37	N	CH2(cyclo-C5H9)	H
E-38	N	CH2(cyclo-C6H11)	H
E-39	N	CH2Ph	H
E-40	N	CH2(2-Cl-Ph)	H
E-41	N	CH2(3-Cl-Ph)	H

Compound	U	R ^{2a}	R ^e
E-42	N	CH2(4-Cl-Ph)	H
E-43	N	CH2(2-CF3-Ph)	H
E-44	N	CH2(3-CF3-Ph)	H
E-45	N	CH2(4-CF3-Ph)	H
E-46	N	CH2(2-F-Ph)	H
E-47	N	CH2(3-F-Ph)	H
E-48	N	CH2(4-F-Ph)	H
E-49	N	CH2(2-OMe-Ph)	H
E-50	N	CH2(3-OMe-Ph)	H
E-51	N	CH2(4-OMe-Ph)	H
E-52	N	CH(CH3)Ph	H
E-53	N	CH(CH3)(2-Cl-Ph)	H
E-54	N	CH(CH3)(3-Cl-Ph)	H
E-55	N	CH(CH3)(4-Cl-Ph)	H
E-56	N	CH(CH3)(2-CF3-Ph)	H
E-57	N	CH(CH3)(3-CF3-Ph)	H
E-58	N	CH(CH3)(4-CF3-Ph)	H
E-59	N	Ph	H
E-60	N	2-Cl-Ph	H
E-61	N	3-Cl-Ph	H
E-62	N	4-Cl-Ph	H
E-63	N	2-CF3-Ph	H
E-64	N	3-CF3-Ph	H
E-65	N	4-CF3-Ph	H
E-66	N	2-CH3O-Ph	H
E-67	N	3-CH3O-Ph	H
E-68	N	4-CH3O-Ph	H
E-69	N	4-CF3O-Ph	H
E-70	N	4-CF3CH2O-Ph	H
E-71	N	4-PhO-Ph	H
E-72	N	4-(4-Cl-Ph)O-Ph	H
E-73	N	4-(4-CF3-Ph)O-Ph	H
E-74	CH	CH3	H
E-75	CH	C2H5	H
E-76	CH	n-C3H7	H
E-77	CH	i-C3H7	H
E-78	CH	n-C4H9	H
E-79	CH	s-C4H9	H
E-80	CH	i-C4H9	H
E-81	CH	t-C4H9	H
E-82	CH	n-C5H11	H
E-83	CH	n-C6H13	H

Compound	U	R ^{2a}	R ^e
E-84	CH	CH2CH=CH2	H
E-85	CH	CH2C(CH3)=CH2	H
E-86	CH	CH2C(CH3)=CHCH3	H
E-87	CH	CH2CH=C(CH3)2	H
E-88	CH	CH2CCl=CH2	H
E-89	CH	CH2CH=CCl2	H
E-90	CH	CH2CH=CHCF3	H
E-91	CH	CH2CH=CHPh	H
E-92	CH	CH(CH3)CH=CH2	H
E-93	CH	CH2CCH	H
E-94	CH	CH2CCCCH3	H
E-95	CH	CH2CF3	H
E-96	CH	CH2CH2OCH3	H
E-97	CH	CH2CH2OC2H5	H
E-98	CH	CH2CH2CH2OCH3	H
E-99	CH	CH2CH2CH2OC2H5	H
E-100	CH	CH2CH(OCH3)2	H
E-101	CH	CH2CN	H
E-102	CH	CH2CO2H	H
E-103	CH	CH2CO2CH3	H
E-104	CH	CH2CO2C2H5	H
E-105	CH	CH(CH3)CO2CH3	H
E-106	CH	cyclo-C3H7	H
E-107	CH	cyclo-C5H9	H
E-108	CH	cyclo-C6H11	H
E-109	CH	CH2(cyclo-C3H5)	H
E-110	CH	CH2(cyclo-C5H9)	H
E-111	CH	CH2(cyclo-C6H11)	H
E-112	CH	CH2Ph	H
E-113	CH	CH2(2-Cl-Ph)	H
E-114	CH	CH2(3-Cl-Ph)	H
E-115	CH	CH2(4-Cl-Ph)	H
E-116	CH	CH2(2-CF3-Ph)	H
E-117	CH	CH2(3-CF3-Ph)	H
E-118	CH	CH2(4-CF3-Ph)	H
E-119	CH	CH2(2-F-Ph)	H
E-120	CH	CH2(3-F-Ph)	H
E-121	CH	CH2(4-F-Ph)	H
E-122	CH	CH2(2-OMe-Ph)	H
E-123	CH	CH2(3-OMe-Ph)	H
E-124	CH	CH2(4-OMe-Ph)	H
E-125	CH	CH(CH3)Ph	H

Compound	U	R ^{2a}	R ^e
E-126	CH	CH(CH3)(2-Cl-Ph)	H
E-127	CH	CH(CH3)(3-Cl-Ph)	H
E-128	CH	CH(CH3)(4-Cl-Ph)	H
E-129	CH	CH(CH3)(2-CF3-Ph)	H
E-130	CH	CH(CH3)(3-CF3-Ph)	H
E-131	CH	CH(CH3)(4-CF3-Ph)	H
E-132	CH	Ph	H
E-133	CH	2-Cl-Ph	H
E-134	CH	3-Cl-Ph	H
E-135	CH	4-Cl-Ph	H
E-136	CH	2-CF3-Ph	H
E-137	CH	3-CF3-Ph	H
E-138	CH	4-CF3-Ph	H
E-139	CH	2-CH3O-Ph	H
E-140	CH	3-CH3O-Ph	H
E-141	CH	4-CH3O-Ph	H
E-142	CH	4-CF3O-Ph	H
E-143	CH	4-CF3CH2O-Ph	H
E-144	CH	4-PhO-Ph	H
E-145	CH	4-(4-Cl-Ph)O-Ph	H
E-146	CH	4-(4-CF3-Ph)O-Ph	H
E-147	CH	OCH3	H
E-148	CH	OC2H5	H
E-149	CH	O-n-C3H7	H
E-150	CH	O-i-C3H7	H
E-151	CH	O-n-C4H9	H
E-152	CH	O-i-C4H7	H
E-153	CH	O-sec-C4H9	H
E-154	CH	O-t-C4H9	H
E-155	CH	O-n-C5H11	H
E-156	CH	OCH2CH=CH2	H
E-157	CH	OCH2C(CH3)=CH2	H
E-158	CH	OCH2CH=CHCH3	H
E-159	CH	OCH2CH=C(CH3)2	H
E-160	CH	OCH2CCH	H
E-161	CH	OCH2CCCH3	H
E-162	CH	OCH2Ph	H
E-163	CH	OCH(CH3)Ph	H
E-164	CH	OCH2(2-Cl-Ph)	H
E-165	CH	OCH2(3-Cl-Ph)	H
E-166	CH	OCH2(4-Cl-Ph)	H
E-167	CH	OCH2(2-OCH3-Ph)	H

Compound	U	R ^{2a}	R ^e
E-168	CH	OCH2(3-OCH3-Ph)	H
E-169	CH	OCH2(4-OCH3-Ph)	H
E-170	CH	OCH2(2-CF3-Ph)	H
E-171	CH	OCH2(3-CF3-Ph)	H
E-172	CH	OCH2(4-CF3-Ph)	H
E-173	CH	OCH2(2-NO2-Ph)	H
E-174	CH	OCH2(3-NO2-Ph)	H
E-175	CH	OCH2(4-NO2-Ph)	H
E-176	N	CH3	CH3
E-177	N	C2H5	CH3
E-178	N	n-C3H7	CH3
E-179	N	i-C3H7	CH3
E-180	N	n-C4H9	CH3
E-181	N	s-C4H9	CH3
E-182	N	i-C4H9	CH3
E-183	N	t-C4H9	CH3
E-184	N	n-C5H11	CH3
E-185	N	n-C6H13	CH3
E-186	N	CH2CH=CH2	CH3
E-187	N	CH2C(CH3)=CH2	CH3
E-188	N	CH2C(CH3)=CHCH3	CH3
E-189	N	CH2CH=C(CH3)2	CH3
E-190	N	CH2CCl=CH2	CH3
E-191	N	CH2CH=CCl2	CH3
E-192	N	CH2CH=CHCF3	CH3
E-193	N	CH2CH=CHPh	CH3
E-194	N	CH(CH3)CH=CH2	CH3
E-195	N	CH2CCH	CH3
E-196	N	CH2CCCH3	CH3
E-197	N	CH2CF3	CH3
E-198	N	CH2CH2OCH3	CH3
E-199	N	CH2CH2OC2H5	CH3
E-200	N	CH2CH2CH2OCH3	CH3
E-201	N	CH2CH2CH2OC2H5	CH3
E-202	N	CH2CH(OCH3)2	CH3
E-203	N	CH2CN	CH3
E-204	N	CH2CO2H	CH3
E-205	N	CH2CO2CH3	CH3
E-206	N	CH2CO2C2H5	CH3
E-207	N	CH(CH3)CO2CH3	CH3
E-208	N	cyclo-C3H7	CH3
E-209	N	cyclo-C5H9	CH3

Compound	U	R ^{2a}	R ^e
E-210	N	cyclo-C6H11	CH3
E-211	N	CH2(cyclo-C3H5)	CH3
E-212	N	CH2(cyclo-C5H9)	CH3
E-213	N	CH2(cyclo-C6H11)	CH3
E-214	N	CH2Ph	CH3
E-215	N	CH2(2-Cl-Ph)	CH3
E-216	N	CH2(3-Cl-Ph)	CH3
E-217	N	CH2(4-Cl-Ph)	CH3
E-218	N	CH2(2-CF3-Ph)	CH3
E-219	N	CH2(3-CF3-Ph)	CH3
E-220	N	CH2(4-CF3-Ph)	CH3
E-221	N	CH2(2-F-Ph)	CH3
E-222	N	CH2(3-F-Ph)	CH3
E-223	N	CH2(4-F-Ph)	CH3
E-224	N	CH2(2-OMe-Ph)	CH3
E-225	N	CH2(3-OMe-Ph)	CH3
E-226	N	CH2(4-OMe-Ph)	CH3
E-227	N	CH(CH3)Ph	CH3
E-228	N	CH(CH3)(2-Cl-Ph)	CH3
E-229	N	CH(CH3)(3-Cl-Ph)	CH3
E-230	N	CH(CH3)(4-Cl-Ph)	CH3
E-231	N	CH(CH3)(2-CF3-Ph)	CH3
E-232	N	CH(CH3)(3-CF3-Ph)	CH3
E-233	N	CH(CH3)(4-CF3-Ph)	CH3
E-234	N	Ph	CH3
E-235	N	2-Cl-Ph	CH3
E-236	N	3-Cl-Ph	CH3
E-237	N	4-Cl-Ph	CH3
E-238	N	2-CF3-Ph	CH3
E-239	N	3-CF3-Ph	CH3
E-240	N	4-CF3-Ph	CH3
E-241	N	2-CH3O-Ph	CH3
E-242	N	3-CH3O-Ph	CH3
E-243	N	4-CH3O-Ph	CH3
E-244	N	4-CF3O-Ph	CH3
E-245	N	4-CF3CH2O-Ph	CH3
E-246	N	4-PhO-Ph	CH3
E-247	N	4-(4-Cl-Ph)O-Ph	CH3
E-248	N	4-(4-CF3-Ph)O-Ph	CH3
E-249	CH	CH3	CH3
E-250	CH	C2H5	CH3
E-251	CH	n-C3H7	CH3

Compound	U	R ^{2a}	R ^e
E-252	CH	i-C ₃ H ₇	CH ₃
E-253	CH	n-C ₄ H ₉	CH ₃
E-254	CH	s-C ₄ H ₉	CH ₃
E-255	CH	i-C ₄ H ₉	CH ₃
E-256	CH	t-C ₄ H ₉	CH ₃
E-257	CH	n-C ₅ H ₁₁	CH ₃
E-258	CH	n-C ₆ H ₁₃	CH ₃
E-259	CH	CH ₂ CH=CH ₂	CH ₃
E-260	CH	CH ₂ C(CH ₃)=CH ₂	CH ₃
E-261	CH	CH ₂ C(CH ₃)=CHCH ₃	CH ₃
E-262	CH	CH ₂ CH=C(CH ₃) ₂	CH ₃
E-263	CH	CH ₂ CCl=CH ₂	CH ₃
E-264	CH	CH ₂ CH=CCl ₂	CH ₃
E-265	CH	CH ₂ CH=CHCF ₃	CH ₃
E-266	CH	CH ₂ CH=CHPh	CH ₃
E-267	CH	CH(CH ₃)CH=CH ₂	CH ₃
E-268	CH	CH ₂ CCH	CH ₃
E-269	CH	CH ₂ CCCH ₃	CH ₃
E-270	CH	CH ₂ CF ₃	CH ₃
E-271	CH	CH ₂ CH ₂ OCH ₃	CH ₃
E-272	CH	CH ₂ CH ₂ OC ₂ H ₅	CH ₃
E-273	CH	CH ₂ CH ₂ CH ₂ OCH ₃	CH ₃
E-274	CH	CH ₂ CH ₂ CH ₂ OC ₂ H ₅	CH ₃
E-275	CH	CH ₂ CH(OCH ₃) ₂	CH ₃
E-276	CH	CH ₂ CN	CH ₃
E-277	CH	CH ₂ CO ₂ H	CH ₃
E-278	CH	CH ₂ CO ₂ CH ₃	CH ₃
E-279	CH	CH ₂ CO ₂ C ₂ H ₅	CH ₃
E-280	CH	CH(CH ₃)CO ₂ CH ₃	CH ₃
E-281	CH	cyclo-C ₃ H ₇	CH ₃
E-282	CH	cyclo-C ₅ H ₉	CH ₃
E-283	CH	cyclo-C ₆ H ₁₁	CH ₃
E-284	CH	CH ₂ (cyclo-C ₃ H ₅)	CH ₃
E-285	CH	CH ₂ (cyclo-C ₅ H ₉)	CH ₃
E-286	CH	CH ₂ (cyclo-C ₆ H ₁₁)	CH ₃
E-287	CH	CH ₂ Ph	CH ₃
E-288	CH	CH ₂ (2-Cl-Ph)	CH ₃
E-289	CH	CH ₂ (3-Cl-Ph)	CH ₃
E-290	CH	CH ₂ (4-Cl-Ph)	CH ₃
E-291	CH	CH ₂ (2-CF ₃ -Ph)	CH ₃
E-292	CH	CH ₂ (3-CF ₃ -Ph)	CH ₃
E-293	CH	CH ₂ (4-CF ₃ -Ph)	CH ₃

Compound	U	R ^{2a}	R ^e
E-294	CH	CH2(2-F-Ph)	CH3
E-295	CH	CH2(3-F-Ph)	CH3
E-296	CH	CH2(4-F-Ph)	CH3
E-297	CH	CH2(2-OMe-Ph)	CH3
E-298	CH	CH2(3-OMe-Ph)	CH3
E-299	CH	CH2(4-OMe-Ph)	CH3
E-300	CH	CH(CH3)Ph	CH3
E-301	CH	CH(CH3)(2-Cl-Ph)	CH3
E-302	CH	CH(CH3)(3-Cl-Ph)	CH3
E-303	CH	CH(CH3)(4-Cl-Ph)	CH3
E-304	CH	CH(CH3)(2-CF3-Ph)	CH3
E-305	CH	CH(CH3)(3-CF3-Ph)	CH3
E-306	CH	CH(CH3)(4-CF3-Ph)	CH3
E-307	CH	Ph	CH3
E-308	CH	2-Cl-Ph	CH3
E-309	CH	3-Cl-Ph	CH3
E-310	CH	4-Cl-Ph	CH3
E-311	CH	2-CF3-Ph	CH3
E-312	CH	3-CF3-Ph	CH3
E-313	CH	4-CF3-Ph	CH3
E-314	CH	2-CH3O-Ph	CH3
E-315	CH	3-CH3O-Ph	CH3
E-316	CH	4-CH3O-Ph	CH3
E-317	CH	4-CF3O-Ph	CH3
E-318	CH	4-CF3CH2O-Ph	CH3
E-319	CH	4-PhO-Ph	CH3
E-320	CH	4-(4-Cl-Ph)O-Ph	CH3
E-321	CH	4-(4-CF3-Ph)O-Ph	CH3
E-322	CH	OCH3	CH3
E-323	CH	OC2H5	CH3
E-324	CH	O-n-C3H7	CH3
E-325	CH	O-i-C3H7	CH3
E-326	CH	O-n-C4H9	CH3
E-327	CH	O-i-C4H7	CH3
E-328	CH	O-sec-C4H9	CH3
E-329	CH	O-t-C4H9	CH3
E-330	CH	O-n-C5H11	CH3
E-331	CH	OCH2CH=CH2	CH3
E-332	CH	OCH2C(CH3)=CH2	CH3
E-333	CH	OCH2CH=CHCH3	CH3
E-334	CH	OCH2CH=C(CH3)2	CH3
E-335	CH	OCH2CCH	CH3

Compound	U	R ^{2a}	R ^e
E-336	CH	OCH2CCCH3	CH3
E-337	CH	OCH2Ph	CH3
E-338	CH	OCH(CH3)Ph	CH3
E-339	CH	OCH2(2-Cl-Ph)	CH3
E-340	CH	OCH2(3-Cl-Ph)	CH3
E-341	CH	OCH2(4-Cl-Ph)	CH3
E-342	CH	OCH2(2-OCH3-Ph)	CH3
E-343	CH	OCH2(3-OCH3-Ph)	CH3
E-344	CH	OCH2(4-OCH3-Ph)	CH3
E-345	CH	OCH2(2-CF3-Ph)	CH3
E-346	CH	OCH2(3-CF3-Ph)	CH3
E-347	CH	OCH2(4-CF3-Ph)	CH3
E-348	CH	OCH2(2-NO2-Ph)	CH3
E-349	CH	OCH2(3-NO2-Ph)	CH3
E-350	CH	OCH2(4-NO2-Ph)	CH3
E-351	CH	CH3	Ph
E-352	CH	C2H5	Ph
E-353	CH	n-C3H7	Ph
E-354	CH	i-C3H7	Ph
E-355	CH	n-C4H9	Ph
E-356	CH	s-C4H9	Ph
E-357	CH	i-C4H9	Ph
E-358	CH	t-C4H9	Ph
E-359	CH	n-C5H11	Ph
E-360	CH	n-C6H13	Ph
E-361	CH	CH2CH=CH2	Ph
E-362	CH	CH2C(CH3)=CH2	Ph
E-363	CH	CH2C(CH3)=CHCH3	Ph
E-364	CH	CH2CH=C(CH3)2	Ph
E-365	CH	CH2CCl=CH2	Ph
E-366	CH	CH2CH=CCl2	Ph
E-367	CH	CH2CH=CHCF3	Ph
E-368	CH	CH2CH=CHPh	Ph
E-369	CH	CH(CH3)CH=CH2	Ph
E-370	CH	CH2CCH	Ph
E-371	CH	CH2CCCH3	Ph
E-372	CH	CH2CF3	Ph
E-373	CH	CH2CH2OCH3	Ph
E-374	CH	CH2CH2OC2H5	Ph
E-375	CH	CH2CH2CH2OCH3	Ph
E-376	CH	CH2CH2CH2OC2H5	Ph
E-377	CH	CH2CH(OCH3)2	Ph

Compound	U	R ^{2a}	R ^e
E-378	CH	CH2CN	Ph
E-379	CH	CH2CO2H	Ph
E-380	CH	CH2CO2CH3	Ph
E-381	CH	CH2CO2C2H5	Ph
E-382	CH	CH(CH3)CO2CH3	Ph
E-383	CH	cyclo-C3H7	Ph
E-384	CH	cyclo-C5H9	Ph
E-385	CH	cyclo-C6H11	Ph
E-386	CH	CH2(cyclo-C3H5)	Ph
E-387	CH	CH2(cyclo-C5H9)	Ph
E-388	CH	CH2(cyclo-C6H11)	Ph
E-389	CH	CH2Ph	Ph
E-390	CH	CH2(2-Cl-Ph)	Ph
E-391	CH	CH2(3-Cl-Ph)	Ph
E-392	CH	CH2(4-Cl-Ph)	Ph
E-393	CH	CH2(2-CF3-Ph)	Ph
E-394	CH	CH2(3-CF3-Ph)	Ph
E-395	CH	CH2(4-CF3-Ph)	Ph
E-396	CH	CH2(2-F-Ph)	Ph
E-397	CH	CH2(3-F-Ph)	Ph
E-398	CH	CH2(4-F-Ph)	Ph
E-399	CH	CH2(2-OMe-Ph)	Ph
E-400	CH	CH2(3-OMe-Ph)	Ph
E-401	CH	CH2(4-OMe-Ph)	Ph
E-402	CH	CH(CH3)Ph	Ph
E-403	CH	CH(CH3)(2-Cl-Ph)	Ph
E-404	CH	CH(CH3)(3-Cl-Ph)	Ph
E-405	CH	CH(CH3)(4-Cl-Ph)	Ph
E-406	CH	CH(CH3)(2-CF3-Ph)	Ph
E-407	CH	CH(CH3)(3-CF3-Ph)	Ph
E-408	CH	CH(CH3)(4-CF3-Ph)	Ph
E-409	CH	Ph	Ph
E-410	CH	2-Cl-Ph	Ph
E-411	CH	3-Cl-Ph	Ph
E-412	CH	4-Cl-Ph	Ph
E-413	CH	2-CF3-Ph	Ph
E-414	CH	3-CF3-Ph	Ph
E-415	CH	4-CF3-Ph	Ph
E-416	CH	2-CH3O-Ph	Ph
E-417	CH	3-CH3O-Ph	Ph
E-418	CH	4-CH3O-Ph	Ph
E-419	CH	4-CF3O-Ph	Ph

Compound	U	R ^{2a}	R ^e
E-420	CH	4-CF ₃ CH ₂ O-Ph	Ph
E-421	CH	4-PhO-Ph	Ph
E-422	CH	4-(4-Cl-Ph)O-Ph	Ph
E-423	CH	4-(4-CF ₃ -Ph)O-Ph	Ph
E-424	CH	OCH ₃	Ph
E-425	CH	OC ₂ H ₅	Ph
E-426	CH	O-n-C ₃ H ₇	Ph
E-427	CH	O-i-C ₃ H ₇	Ph
E-428	CH	O-n-C ₄ H ₉	Ph
E-429	CH	O-i-C ₄ H ₇	Ph
E-430	CH	O-sec-C ₄ H ₉	Ph
E-431	CH	O-t-C ₄ H ₉	Ph
E-432	CH	O-n-C ₅ H ₁₁	Ph
E-433	CH	OCH ₂ CH=CH ₂	Ph
E-434	CH	OCH ₂ C(CH ₃)=CH ₂	Ph
E-435	CH	OCH ₂ CH=CHCH ₃	Ph
E-436	CH	OCH ₂ CH=C(CH ₃) ₂	Ph
E-437	CH	OCH ₂ CCH	Ph
E-438	CH	OCH ₂ CCCH ₃	Ph
E-439	CH	OCH ₂ Ph	Ph
E-440	CH	OCH(CH ₃)Ph	Ph
E-441	CH	OCH ₂ (2-Cl-Ph)	Ph
E-442	CH	OCH ₂ (3-Cl-Ph)	Ph
E-443	CH	OCH ₂ (4-Cl-Ph)	Ph
E-444	CH	OCH ₂ (2-OCH ₃ -Ph)	Ph
E-445	CH	OCH ₂ (3-OCH ₃ -Ph)	Ph
E-446	CH	OCH ₂ (4-OCH ₃ -Ph)	Ph
E-447	CH	OCH ₂ (2-CF ₃ -Ph)	Ph
E-448	CH	OCH ₂ (3-CF ₃ -Ph)	Ph
E-449	CH	OCH ₂ (4-CF ₃ -Ph)	Ph
E-450	CH	OCH ₂ (2-NO ₂ -Ph)	Ph
E-451	CH	OCH ₂ (3-NO ₂ -Ph)	Ph
E-452	CH	OCH ₂ (4-NO ₂ -Ph)	Ph
E-453	N	CH ₃	Ph
E-454	N	C ₂ H ₅	Ph
E-455	N	n-C ₃ H ₇	Ph
E-456	N	i-C ₃ H ₇	Ph
E-457	N	n-C ₄ H ₉	Ph
E-458	N	s-C ₄ H ₉	Ph
E-459	N	i-C ₄ H ₉	Ph
E-460	N	t-C ₄ H ₉	Ph
E-461	N	n-C ₅ H ₁₁	Ph

Compound	U	R ^{2a}	R ^e
E-462	N	n-C6H13	Ph
E-463	N	CH ₂ CH=CH ₂	Ph
E-464	N	CH ₂ C(CH ₃)=CH ₂	Ph
E-465	N	CH ₂ C(CH ₃)=CHCH ₃	Ph
E-466	N	CH ₂ CH=C(CH ₃) ₂	Ph
E-467	N	CH ₂ CCl=CH ₂	Ph
E-468	N	CH ₂ CH=CCl ₂	Ph
E-469	N	CH ₂ CH=CHCF ₃	Ph
E-470	N	CH ₂ CH=CHPh	Ph
E-471	N	CH(CH ₃)CH=CH ₂	Ph
E-472	N	CH ₂ CCH	Ph
E-473	N	CH ₂ CCCH ₃	Ph
E-474	N	CH ₂ CF ₃	Ph
E-475	N	CH ₂ CH ₂ OCH ₃	Ph
E-476	N	CH ₂ CH ₂ OC ₂ H ₅	Ph
E-477	N	CH ₂ CH ₂ CH ₂ OCH ₃	Ph
E-478	N	CH ₂ CH ₂ CH ₂ OC ₂ H ₅	Ph
E-479	N	CH ₂ CH(OCH ₃) ₂	Ph
E-480	N	CH ₂ CN	Ph
E-481	N	CH ₂ CO ₂ H	Ph
E-482	N	CH ₂ CO ₂ CH ₃	Ph
E-483	N	CH ₂ CO ₂ C ₂ H ₅	Ph
E-484	N	CH(CH ₃)CO ₂ CH ₃	Ph
E-485	N	cyclo-C ₃ H ₇	Ph
E-486	N	cyclo-C ₅ H ₉	Ph
E-487	N	cyclo-C ₆ H ₁₁	Ph
E-488	N	CH ₂ (cyclo-C ₃ H ₅)	Ph
E-489	N	CH ₂ (cyclo-C ₅ H ₉)	Ph
E-490	N	CH ₂ (cyclo-C ₆ H ₁₁)	Ph
E-491	N	CH ₂ Ph	Ph
E-492	N	CH ₂ (2-Cl-Ph)	Ph
E-493	N	CH ₂ (3-Cl-Ph)	Ph
E-494	N	CH ₂ (4-Cl-Ph)	Ph
E-495	N	CH ₂ (2-CF ₃ -Ph)	Ph
E-496	N	CH ₂ (3-CF ₃ -Ph)	Ph
E-497	N	CH ₂ (4-CF ₃ -Ph)	Ph
E-498	N	CH ₂ (2-F-Ph)	Ph
E-499	N	CH ₂ (3-F-Ph)	Ph
E-500	N	CH ₂ (4-F-Ph)	Ph
E-501	N	CH ₂ (2-OMe-Ph)	Ph
E-502	N	CH ₂ (3-OMe-Ph)	Ph
E-503	N	CH ₂ (4-OMe-Ph)	Ph

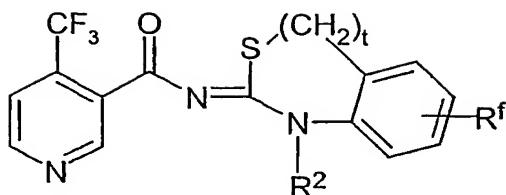
Compound	U	R ^{2a}	R ^e
E-504	N	CH(CH ₃)Ph	Ph
E-505	N	CH(CH ₃)(2-Cl-Ph)	Ph
E-506	N	CH(CH ₃)(3-Cl-Ph)	Ph
E-507	N	CH(CH ₃)(4-Cl-Ph)	Ph
E-508	N	CH(CH ₃)(2-CF ₃ -Ph)	Ph
E-509	N	CH(CH ₃)(3-CF ₃ -Ph)	Ph
E-510	N	CH(CH ₃)(4-CF ₃ -Ph)	Ph
E-511	N	Ph	Ph
E-512	N	2-Cl-Ph	Ph
E-513	N	3-Cl-Ph	Ph
E-514	N	4-Cl-Ph	Ph
E-515	N	2-CF ₃ -Ph	Ph
E-516	N	3-CF ₃ -Ph	Ph
E-517	N	4-CF ₃ -Ph	Ph
E-518	N	2-CH ₃ O-Ph	Ph
E-519	N	3-CH ₃ O-Ph	Ph
E-520	N	4-CH ₃ O-Ph	Ph
E-521	N	4-CF ₃ O-Ph	Ph
E-522	N	4-CF ₃ CH ₂ O-Ph	Ph
E-523	N	4-PhO-Ph	Ph
E-524	N	4-(4-Cl-Ph)O-Ph	Ph
E-525	N	4-(4-CF ₃ -Ph)O-Ph	Ph
E-526	CH	CH ₃	CF ₃
E-527	CH	i-C ₃ H ₇	CF ₃
E-528	CH	CH ₂ CHCH ₂	CF ₃
E-529	CH	CH ₂ Ph	CF ₃
E-530	CH	Ph	CF ₃
E-531	CH	3-CF ₃ -Ph	CF ₃
E-532	N	CH ₃	CF ₃
E-533	N	i-C ₃ H ₇	CF ₃
E-534	N	CH ₂ CHCH ₂	CF ₃
E-535	N	CH ₂ Ph	CF ₃
E-536	N	Ph	CF ₃
E-537	N	3-CF ₃ -Ph	CF ₃

Table 6

Compounds of formula (If) wherein t is 0 or 1. Compounds F-1 to F-78 represent

individual compounds in which t is 0, whilst compounds G-1 to G-78 represent

5 individual compounds in which t is 1.



(1f)

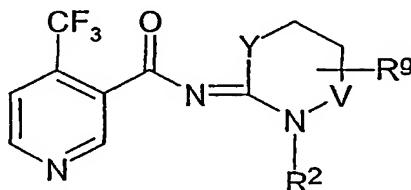
Compound	R ²	R ^f
F-1	G-1	H
F-2	G-2	CH ₃
F-3	G-3	C ₂ H ₅
F-4	G-4	n-C ₃ H ₇
F-5	G-5	i-C ₃ H ₇
F-6	G-6	n-C ₄ H ₉
F-7	G-7	s-C ₄ H ₉
F-8	G-8	i-C ₄ H ₉
F-9	G-9	t-C ₄ H ₉
F-10	G-10	n-C ₅ H ₁₁
F-11	G-11	n-C ₆ H ₁₃
F-12	G-12	CH ₂ CH=CH ₂
F-13	G-13	CH ₂ C(CH ₃)=CH ₂
F-14	G-14	CH ₂ C(CH ₃)=CHCH ₃
F-15	G-15	CH ₂ CH=C(CH ₃) ₂
F-16	G-16	CH ₂ CCl=CH ₂
F-17	G-17	CH ₂ CH=CCl ₂
F-18	G-18	CH ₂ CH=CHCF ₃
F-19	G-19	CH ₂ CH=CHPh
F-20	G-20	CH(CH ₃)CH=CH ₂
F-21	G-21	CH ₂ CCH
F-22	G-22	CH ₂ CCCH ₃
F-23	G-23	CH ₂ CF ₃
F-24	G-24	CH ₂ CH ₂ OCH ₃
F-25	G-25	CH ₂ CH ₂ OC ₂ H ₅
F-26	G-26	CH ₂ CH ₂ CH ₂ OCH ₃
F-27	G-27	CH ₂ CH ₂ CH ₂ OC ₂ H ₅
F-28	G-28	CH ₂ CH(OCH ₃) ₂
F-29	G-29	CH ₂ CN
F-30	G-30	CH ₂ CO ₂ CH ₃
F-31	G-31	CH ₂ CO ₂ C ₂ H ₅
F-32	G-32	CH(CH ₃)CO ₂ CH ₃
F-33	G-33	cyclo-C ₃ H ₇
F-34	G-34	cyclo-C ₅ H ₉
F-35	G-35	cyclo-C ₆ H ₁₁

Compound	R ²	R ¹
F-36	G-36	CH2(cyclo-C3H5)
F-37	G-37	CH2(cyclo-C5H9)
F-38	G-38	CH2(cyclo-C6H11)
F-39	G-39	CH2Ph
F-40	G-40	CH2(2-Cl-Ph)
F-41	G-41	CH2(3-Cl-Ph)
F-42	G-42	CH2(4-Cl-Ph)
F-43	G-43	CH2(2-CF ₃ -Ph)
F-44	G-44	CH2(3-CF ₃ -Ph)
F-45	G-45	CH2(4-CF ₃ -Ph)
F-46	G-46	CH2(2-F-Ph)
F-47	G-47	CH2(3-F-Ph)
F-48	G-48	CH2(4-F-Ph)
F-49	G-49	CH2(2-OMe-Ph)
F-50	G-50	CH2(3-OMe-Ph)
F-51	G-51	CH2(4-OMe-Ph)
F-52	G-52	CH(CH3)Ph
F-53	G-53	CH(CH3)(2-Cl-Ph)
F-54	G-54	CH(CH3)(3-Cl-Ph)
F-55	G-55	CH(CH3)(4-Cl-Ph)
F-56	G-56	CH(CH3)(2-CF ₃ -Ph)
F-57	G-57	CH(CH3)(3-CF ₃ -Ph)
F-58	G-58	CH(CH3)(4-CF ₃ -Ph)
F-59	G-59	H
F-60	G-60	4-Cl
F-61	G-61	CH ₃
F-62	G-62	4-Cl
F-63	G-63	CH2C(CH ₃)=CH ₂
F-64	G-64	4-Cl
F-65	G-65	H
F-66	G-66	5-Cl
F-67	G-67	CH ₂ CH=CH ₂
F-68	G-68	5-Cl
F-69	G-69	CH2C(CH ₃)=CH ₂
F-70	G-70	5-Cl
F-71	G-71	H
F-72	G-72	6-Cl
F-73	G-73	CH2CH=CH ₂
F-74	G-74	6-Cl
F-75	G-75	CH2C(CH ₃)=CH ₂
F-76	G-76	6-Cl
F-77	G-77	H
		7-Cl

Compound	R ²	R ^f
F-78	G-78	CH2Ph

Table 7

Compounds of formula (1g). Compounds H-1 to H-102 represent individual compounds in which Y is S and V is CH₂; compounds I-1 to I-102 represent individual compounds in which Y is S and V is O; compounds J-1 to J-102 represent individual compounds in which Y is O and V is CH₂.



(1g)

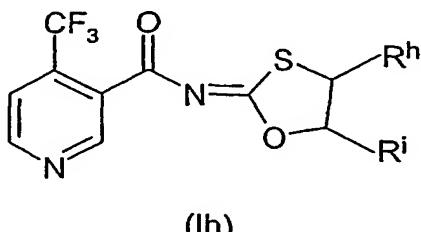
Compound			R ²	R ⁹
H-1	I-1	J-1	H	H
H-2	I-2	J-2	CH ₃	H
H-3	I-3	J-3	C ₂ H ₅	H
H-4	I-4	J-4	n-C ₃ H ₇	H
H-5	I-5	J-5	i-C ₃ H ₇	H
H-6	I-6	J-6	n-C ₄ H ₉	H
H-7	I-7	J-7	s-C ₄ H ₉	H
H-8	I-8	J-8	i-C ₄ H ₉	H
H-9	I-9	J-9	t-C ₄ H ₉	H
H-10	I-10	J-10	n-C ₅ H ₁₁	H
H-11	I-11	J-11	n-C ₆ H ₁₃	H
H-12	I-12	J-12	CH ₂ CH=CH ₂	H
H-13	I-13	J-13	CH ₂ C(CH ₃)=CH ₂	H
H-14	I-14	J-14	CH ₂ C(CH ₃)=CHCH ₃	H
H-15	I-15	J-15	CH ₂ CH=C(CH ₃) ₂	H
H-16	I-16	J-16	CH ₂ CCl=CH ₂	H
H-17	I-17	J-17	CH ₂ CH=CCl ₂	H
H-18	I-18	J-18	CH ₂ CH=CHCF ₃	H
H-19	I-19	J-19	CH ₂ CH=CHPh	H
H-20	I-20	J-20	CH(CH ₃)CH=CH ₂	H
H-21	I-21	J-21	CH ₂ CCH	H
H-22	I-22	J-22	CH ₂ CCCH ₃	H
H-23	I-23	J-23	CH ₂ CF ₃	H
H-24	I-24	J-24	CH ₂ CH ₂ OCH ₃	H
H-25	I-25	J-25	CH ₂ CH ₂ OC ₂ H ₅	H
H-26	I-26	J-26	CH ₂ CH ₂ CH ₂ OCH ₃	H
H-27	I-27	J-27	CH ₂ CH ₂ CH ₂ OC ₂ H ₅	H
H-28	I-28	J-28	CH ₂ CH(OCH ₃) ₂	H
H-29	I-29	J-29	CH ₂ CN	H

Compound		R ²	R ⁹
H-30	I-30	J-30	CH ₂ CO ₂ CH ₃
H-31	I-31	J-31	CH ₂ CO ₂ C ₂ H ₅
H-32	I-32	J-32	CH(CH ₃)CO ₂ CH ₃
H-33	I-33	J-33	cyclo-C ₃ H ₇
H-34	I-34	J-34	cyclo-C ₅ H ₉
H-35	I-35	J-35	cyclo-C ₆ H ₁₁
H-36	I-36	J-36	CH ₂ (cyclo-C ₃ H ₅)
H-37	I-37	J-37	CH ₂ (cyclo-C ₅ H ₉)
H-38	I-38	J-38	CH ₂ (cyclo-C ₆ H ₁₁)
H-39	I-39	J-39	CH ₂ Ph
H-40	I-40	J-40	CH ₂ (2-Cl-Ph)
H-41	I-41	J-41	CH ₂ (3-Cl-Ph)
H-42	I-42	J-42	CH ₂ (4-Cl-Ph)
H-43	I-43	J-43	CH ₂ (2-CF ₃ -Ph)
H-44	I-44	J-44	CH ₂ (3-CF ₃ -Ph)
H-45	I-45	J-45	CH ₂ (4-CF ₃ -Ph)
H-46	I-46	J-46	CH ₂ (2-F-Ph)
H-47	I-47	J-47	CH ₂ (3-F-Ph)
H-48	I-48	J-48	CH ₂ (4-F-Ph)
H-49	I-49	J-49	CH ₂ (2-OMe-Ph)
H-50	I-50	J-50	CH ₂ (3-OMe-Ph)
H-51	I-51	J-51	CH ₂ (4-OMe-Ph)
H-52	I-52	J-52	CH(CH ₃)Ph
H-53	I-53	J-53	CH(CH ₃)(2-Cl-Ph)
H-54	I-54	J-54	CH(CH ₃)(3-Cl-Ph)
H-55	I-55	J-55	CH(CH ₃)(4-Cl-Ph)
H-56	I-56	J-56	CH(CH ₃)(2-CF ₃ -Ph)
H-57	I-57	J-57	CH(CH ₃)(3-CF ₃ -Ph)
H-58	I-58	J-58	CH(CH ₃)(4-CF ₃ -Ph)
H-59	I-59	J-59	Ph
H-60	I-60	J-60	2-Cl-Ph
H-61	I-61	J-61	3-Cl-Ph
H-62	I-62	J-62	4-Cl-Ph
H-63	I-63	J-63	2-CF ₃ -Ph
H-64	I-64	J-64	3-CF ₃ -Ph
H-65	I-65	J-65	4-CF ₃ -Ph
H-66	I-66	J-66	2-CH ₃ O-Ph
H-67	I-67	J-67	3-CH ₃ O-Ph
H-68	I-68	J-68	4-CH ₃ O-Ph
H-69	I-69	J-69	4-CF ₃ O-Ph
H-70	I-70	J-70	4-CF ₃ CH ₂ O-Ph
H-71	I-71	J-71	4-PhO-Ph

Compound		R ²	R ⁹
H-72	I-72	J-72	4-(4-Cl-Ph)O-Ph
H-73	I-73	J-73	4-(4-CF ₃ -Ph)O-Ph
H-74	I-74	J-74	OCH ₃
H-75	I-75	J-75	OC ₂ H ₅
H-76	I-76	J-76	O-n-C ₃ H ₇
H-77	I-77	J-77	O-i-C ₃ H ₇
H-78	I-78	J-78	O-n-C ₄ H ₉
H-79	I-79	J-79	O-i-C ₄ H ₇
H-80	I-80	J-80	O-sec-C ₄ H ₉
H-81	I-81	J-81	O-t-C ₄ H ₉
H-82	I-82	J-82	O-n-C ₅ H ₁₁
H-83	I-83	J-83	OCH ₂ CH=CH ₂
H-84	I-84	J-84	OCH ₂ C(CH ₃)=CH ₂
H-85	I-85	J-85	OCH ₂ CH=CHCH ₃
H-86	I-86	J-86	OCH ₂ CH=C(CH ₃) ₂
H-87	I-87	J-87	OCH ₂ CCH
H-88	I-88	J-88	OCH ₂ CCCH ₃
H-89	I-89	J-89	OCH ₂ Ph
H-90	I-90	J-90	OCH(CH ₃)Ph
H-91	I-91	J-91	OCH ₂ (2-Cl-Ph)
H-92	I-92	J-92	OCH ₂ (3-Cl-Ph)
H-93	I-93	J-93	OCH ₂ (4-Cl-Ph)
H-94	I-94	J-94	OCH ₂ (2-OCH ₃ -Ph)
H-95	I-95	J-95	OCH ₂ (3-OCH ₃ -Ph)
H-96	I-96	J-96	OCH ₂ (4-OCH ₃ -Ph)
H-97	I-97	J-97	OCH ₂ (2-CF ₃ -Ph)
H-98	I-98	J-98	OCH ₂ (3-CF ₃ -Ph)
H-99	I-99	J-99	OCH ₂ (4-CF ₃ -Ph)
H-100	I-100	J-100	OCH ₂ (2-NO ₂ -Ph)
H-101	I-101	J-101	OCH ₂ (3-NO ₂ -Ph)
H-102	I-102	J-102	OCH ₂ (4-NO ₂ -Ph)

Table 8

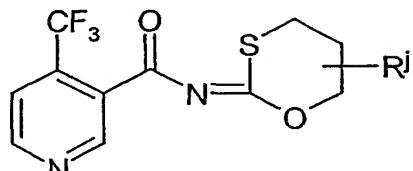
Compounds of formula (Ih):



Compound	R ^h	R ⁱ
K-1	H	H
K-2	CH ₃	H
K-3	H	CH ₃
K-4	CH ₃	CH ₃

Table 9

5 Compounds of formula (ii);



(ii)

Compound	R ^j
L-1	H

10 Table 10

1H-NMR spectral details for representative Examples from the above Tables.

Spectra were measured in deuterochloroform unless otherwise stated.

Cpd	1H-NMR
A-1	11.24(1H, s) 9.20(1H, s) 8.80(1H, d) 7.57(1H, d) 3.08(3H, d) 2.53(3H, s)
A-11	11.04(1H, s) 9.18(1H, s) 8.79(1H, d) 7.57(1H, d) 5.93(1H, m) 5.26(1H, d) 5.20(1H, d) 3.86(2H, d) 3.08(3H, d)
A-20	11.02(1H, s) 9.26(1H, s) 8.81(1H, d) 7.58(1H, d) 3.97(2H, s) 3.09(3H, d)
A-32	11.03(1H, s) 9.13(1H, s) 8.79(1H, d) 7.57(1H, d) 7.25-7.40(5H) 4.44(2H, s) 3.05(3H, d)
A-53	9.14(1H, s) 8.78(1H, d) 7.58(1H, d) 3.29(6H, s) 2.55(2H, s)
A-54	9.12(1H, s) 8.75(1H, d) 7.56(1H, d) 3.15(6H, s) 3.11(2H, q) 1.34(3H, t)

Cpd	1H-NMR
A-56	9.13(1H, s) 8.76(1H, d) 7.57(1H, d) 3.84(1H, m) 3.26(6H, s) 1.39(3H, d)
A-59	9.14(1H, s) 8.76(1H, d) 7.57(1H, d) 3.29(6H, s) 3.00(2H, d) 1.78(1H, m) 1.01(6H, d)
A-67	9.15(1H, s) 8.76(1H, d) 7.57(1H, d) 5.88(1H, m) 5.28(1H, d) 5.18(1H, d) 3.75(2H, d) 3.28(6H, s)
A-72	9.23(1H, s) 8.77(1H, d) 7.57(1H, d) 3.86(1H, d) 3.28(6H, s) 2.28(1H, t)
A-84	9.14(1H, s) 8.77(1H, d) 7.57(1H, d) 3.87(2H, s) 3.66(2H, s) 3.29(6H, s)
A-89	9.13(1H, s) 8.74(1H, d) 7.57(1H, d) 7.20-7.35(5H) 4.35(2H, s) 3.28(6H, s)
A-94	9.13(1H, s) 8.88(1H, d) 7.35-7.70(5H) 4.37(2H, s) 3.29(6H, s)
A-95	9.14(1H, s) 8.85(1H, d) 7.56(1H, d) 7.50(2H, d) 7.28(2H, d) 4.37(2H, s) 3.29(6H, s)
A-102	9.09(1H, s) 8.76(1H, d) 7.58(1H, d) 7.40-7.25(5H) 4.93(1H, q) 3.24(6H, s) 1.75(3H, d)
A-221	10.99(1H, s) 9.17(1H, s) 8.78(1H, d) 7.56(1H, d) 3.96(1H, m) 3.14(2H, t) 1.75(2H, m) 1.33(6H, d) 1.00(3H, t)
A-229	10.99(1H) 9.17(1H, s) 8.79(1H, d) 7.57(1H, d) 5.94(1H, m) 5.25(1H, d) 5.20(1H, d) 3.94(1H, m) 3.84(2H, d) 1.34(6H, d)
A-230	10.99(1H) 9.15(1H, s) 8.78(1H, d) 7.56(1H, d) 4.98(1H, s) 4.90(1H, s) 3.98(1H, m) 3.89(2H, s) 1.82(3H, s) 1.34(6H, d)
A-231	10.96(1H) 9.16(1H, s) 8.77(1H, d) 7.55(1H, d) 5.67(1H, m) 5.51(1H, m) 3.92(1H, m) 3.78(2H, d) 1.67(3H, d) 1.32(6H, d)
A-237	10.97(1H) 9.17(1H, s) 8.78(1H, d) 7.57(1H, d) 6.00(1H, m) 5.22(1H, d) 5.13(1H, d) 4.68(1H, m) 3.94(1H, m) 1.50(3H, d) 1.33(6H, d)
A-250	9.13(1H, s) 8.78(1H, d) 7.57(1H, d) 7.20-7.35(5H) 4.43(2H, s) 3.91(1H, m) 1.35(6H, d)
A-255	11.00(1H) 9.10(1H, s) 8.80(1H, d) 7.30-7.60(5H) 4.46(2H, s) 3.90(1H, m) 1.35(6H, d)

Cpd	1H-NMR
A-437	11.18(1H, s) 9.16(1H, s) 8.79(1H, d) 7.57(1H, d) 6.0-5.8(1H, m) 5.3-5.0(2H, m) 3.84(2H, m) 3.22(2H, t) 2.1-1.9(1H, m) 1.02(6H, d)
A-438	11.19(1H, s) 9.15(1H, s) 8.78(1H, d) 7.57(1H, d) 4.98(1H, s) 4.90(1H, s) 3.90(1H, s) 3.24(2H, t) 2.1-1.9(1H, m) 1.82(3H, s) 1.03(6H, d)
A-439	11.17(1H, s) 9.17(1H, s) 8.78(1H, d) 7.57(1H, d) 5.8-5.4(2H, m) 3.80(2H, d) 3.20(2H, t) 2.1-1.8(1H, m) 1.8-1.6(3H, m) 1.02(6H, d)
A-458	1.17(1H, s) 9.12(1H, s) 8.78(1H, d) 7.57(1H, d) 7.4-7.1(5H, m) 4.43(2H, s) 3.20(2H, t) 2.1-1.9(1H, m) 1.01(6H, d)
A-460	11.17(1H, s) 9.08(1H, s) 8.79(1H, d) 7.57(1H, d) 7.4-7.1(4H, m) 4.38(2H, s) 3.21(2H, t) 2.1-1.9(1H, m) 1.01(6H, d)
A-479	11.50(1H) 9.15(1H, s) 8.89(1H, d) 7.57(1H, d) 2.52(3H, s) 1.53(9H, s)
A-481	11.53(1H) 9.12((1H, s) 8.76(1H, d) 7.55(1H, d) 3.15(2H, t) 1.71(2H, m) 1.52(9H, s) 0.99(3H, t)
A-489	11.56(1H) 9.14(1H, s) 8.80(1H, d) 7.58(1H, d) 5.95(1H, m) 5.28(1H, d) 5.18(1H, d) 3.88(2H, d) 1.56(9H, s)
A-490	11.53(1H) 9.10(1H, s) 8.76(1H, d) 7.55(1H, d) 4.97(1H, s) 4.90(1H, s) 3.89(2H, s) 1.82(3H, s) 1.52(9H, s)
A-491	11.51(1H) 9.13(1H, s) 8.77(1H, d) 7.56(1H, d) 5.66(1H, m) 5.54(1H, m) 3.80(2H) 1.64(3H, s) 1.52(9H, s)
A-504	11.51(1H) 9.03(1H, s) 8.78(1H, d) 7.56(1H, d) 3.91(2H, s) 3.65(3H, s) 1.56(9H, s)
A-576	9.15(1H, s) 8.77(1H, d) 7.57(1H, d) 5.85(1H, m) 5.28(1H, d) 5.19(1H, d) 3.73(2H, d) 3.66(2H, q) 3.54(2H, t) 1.72(2H, d) 1.30(3H, t) 0.96(3H, t)
A-714	11.35(1H) 9.21(1H, s) 8.78(1H, d) 7.57(1H, d) 7.25-7.45(5H) 4.60(2H, d) 2.53(3H, s)
A-715	11.37(1H, s) 9.20(1H, s) 8.79(1H, d) 7.57(1H, d) 7.23-7.43(5H) 4.29(2H, d) 3.19(2H, q) 1.35(3H, t)
A-717	11.38(1H) 9.20(1H, s) 8.78(1H, d) 7.57(1H, d) 7.25-7.42(5H) 4.56(2H, s)

Cpd	1H-NMR
	4.12(1H, m) 1.40(6H, d)
A-724	11.36(1H, s) 9.15(1H, s) 8.78(1H, d) 7.58(1H, d) 7.25-7.45(5H) 5.93(1H, m) 5.24(1H, d) 5.14(1H, d) 4.57(2H, d) 3.87(2H, d)
A-733	11.32(1H) 9.27(1H, s) 8.81(1H, d) 7.58(1H, d) 7.24-7.45(5H) 5.99(2H, d) 3.98(2H, s) 2.28(1H, s)
A-740	11.34(1H) 9.12(1H, s) 8.78(1H, d) 7.56(1H, d) 7.25-7.40(5H) 4.60-4.67(3H) 3.43-3.66(4H) 3.41(2H, d) 1.16(6H, t)
A-1321	9.11(1H, s) 8.78(1H, d) 7.59(1H, d) 7.44-7.50(3H) 7.29(2H, d) 3.53(3H, s) 2.44(3H, s)
A-1322	9.10(1H, s) 8.78(1H, d) 7.59(1H, d) 7.45-7.50(3H) 7.33(2H, d) 3.51(3H, s) 3.01(2H, q) 1.24(3H, t)
A-776	9.17(1H, s) 8.76(1H, d) 7.57(1H, d) 7.25-7.40(5H) 5.89(1H, m) 5.25(1H, d) 5.18(1H, d) 4.87(2H, s) 3.78(2H, d) 3.16(3H, s)
A-1063	9.11(1H, s) 8.75(1H, d) 7.55(1H, d) 3.65(4H, dt) 2.56(3H, s) 2.05(4H, m)
A-1108	9.14(1H, s) 8.76(1H, d) 7.57(1H, d) 5.86(1H, m) 5.24(1H, d) 5.17(1H, d) 3.70-3.77(3H) 1.67-1.83(6H)
A-1145	9.15(1H, s) 8.79(1H, d) 7.58(1H, d) 5.84(1H, m) 5.26(1H, d) 5.19(1H, d) 3.81(8H) 3.72(2H, d)
A-1275	9.26(1H, s) 8.83(1H, d) 7.62(1H, d) 7.38(2H, d) 7.27(2H, d) 5.85(1H, m) 5.23(1H, d) 5.14(1H, d) 3.81(2H, d)
A-1279	9.23(1H, s) 8.83(1H, d) 7.61(1H, d) 7.15-7.40(9H) 4.40(2H, s)
A-1324	9.11(1H, s) 8.77(1H, d) 7.59(1H, d) 7.43-7.50(3H) 7.33(2H) 3.77(1H, m) 3.49(3H, s) 1.30(6H, d)
A-1325	9.15(1H, s) 8.78(1H, d) 7.60(1H, d) 7.35-7.50(3H) 7.30(2H) 5.78(1H, m) 5.18(1H, d) 5.11(1H, d) 3.65(2H, d) 3.51(3H, s)
A-1329	9.17(1H, s) 8.80(1H, d) 7.60(1H, d) 7.25-7.53(5H) 3.76(2H, s) 3.65(3H, s) 3.48(3H, s)
A-1332	9.11(1H, s) 8.78(1H, d) 7.59(1H, d) 7.20-7.48(10H) 4.25(2H, s) 3.52(3H, s)

Cpd	1H-NMR
A-1432	8.95(1H, s) 8.74(1H, d) 7.54(1H, d) 7.25-7.43(5H) 5.86(1H, m) 5.21(1H, d) 5.14(1H, d) 3.69(2H, d) 2.09(3H, s) 1.95(3H, s)
A-1437	9.29(1H, s) 8.85(1H, d) 7.50-7.68(5H) 5.90(1H, m) 5.24(1H, d) 5.09(1H, d) 3.84(2H, d)
A-1438	12.64(1H) 9.24(1H, s) 8.85(1H, d) 7.15-7.70(9H) 4.43(2H, s)
C-43	9.17(1H, s) 8.84(1H, d) 7.60(1H, d) 5.89(1H, m) 5.28(1H, d) 5.19(1H, d) 4.54(2H, q) 3.63(2H, d) 1.41(3H, t)
C-612	11.37(1H) 9.18(1H, s) 8.79(1H, d) 7.57(1H, d) 7.28-7.40(5H) 5.91(1H, m) 5.25(1H, d) 5.14(1H, d) 4.60(2H, d) 3.87(2H, d)
D-1	9.75(1H) 9.17(1H, s) 8.82(1H, d) 7.59(1H, d) 3.45(2H, t) 3.27(2H, t)
D-2	9.20(1H, s) 8.80(1H, d) 7.57(1H, d) 3.75(2H, t) 3.25(2H, t) 3.23(3H, s)
D-3	9.19(1H, s) 8.79(1H, d) 7.57(1H, d) 3.71-3.80(4H) 3.23(2H, t) 1.23(3H, t)
D-5	9.18(1H, s) 8.79(1H, d) 7.57(1H, d) 4.97(1H, m) 3.79(2H, t) 3.19(2H, t) 1.28(6H, d)
D-9	9.16(1H, s) 8.80(1H, d) 7.58(1H, d) 3.85(2H, t) 3.09(1H, t) 1.58(8H, s)
D-40	9.21(1H, s) 8.79(1H, d) 7.58(1H, d) 7.23-7.40(5H) 4.90(2H, s) 3.63(2H, t) 3.19(2H, t)
D-60	9.09(1H, s) 8.75(1H, d) 7.53(1H, d) 7.41-7.44(4H) 7.30(1H) 4.18(1H, t) 3.36(1H, t)
D-63	9.07(1H, s) 8.77(1H, d) 7.55(1H, d) 7.30-7.45(4H) 4.15(2H, t) 3.37(2H, t)
D-104	9.31(1H, s) 8.91(1H, d) 7.66(1H, d) 3.90(2H, s) 3.38(3H, s)
D-107	9.29(1H, s) 8.90(1H, d) 7.66(1H, d) 5.02(1H, m) 3.77(2H, s) 1.51(6H, d)
D-111	9.23(1H, s) 8.90(1H, d) 7.66(1H, d) 3.75(2H, s) 1.78(9H, s)
D-143	9.25(1H, s) 8.91(1H, d) 7.66(1H, d) 7.25-7.42(5H) 5.09(2H, s) 3.88(2H, s)
D-166	9.04(1H, s) 8.84(1H, d) 7.59(1H, d) 7.50(2H, d) 7.24(2H, d) 4.05(2H, s)
D-207	9.31(1H, s) 8.90(1H, d) 4.06(1H, q) 3.38(3H, s) 1.71(3H, d)
D-210	9.29(1H, s) 8.90(1H, d) 7.66(1H, s) 5.02(1H, m) 4.10(1H, q) 1.68(3H, d)

Cpd	1H-NMR
	1.53(6H, d)
D-246	9.23(1H, s) 8.89(1H, d) 7.65(1H, d) 7.25-7.38(5H) 5.08(2H) 4.05(1H, q) 1.70(3H, d)
D-269	9.04(1H, s) 8.83(1H, d) 7.58(1H, d) 7.47(2H, d) 7.24(2H, d) 4.21(1H, q) 1.80(3H, d)
D-310	9.32(1H, s) 8.90(1H, d) 7.66(1H, d) 3.39(3H, s) 1.69(6H, s)
D-313	9.28(1H, s) 8.88(1H, d) 7.65(1H, d) 5.00(1H, m) 1.63(6H, s) 1.50(6H, d)
D-349	9.20(1H, s) 9.87(1H, d) 7.64(1H, d) 7.20-7.40(5H) 5.10(2H, s) 1.68(6H, s)
D-372	9.06(1H, s) 8.83(1H, d) 7.59(1H, d) 7.48(2H, d) 7.26(2H, d) 1.80(6H, s)
D-722	9.23(1H, s) 8.80(1H, d) 7.58(1H, d) 5.29(1H, d) 3.84(1H, dd) 3.76(2H) 3.46(1H) 3.29(3H, s) 1.23(3H, t)
D-825	9.45(1H) 9.16(1H, s) 8.82(1H, d) 7.55(1H, d) 4.61(2H, t) 3.95(2H, t)
E-1	9.30(1H, s) 8.84(1H, d) 8.43(1H, s) 7.64(1H, d) 4.09(3H, s)
E-11	9.30(1H, s) 8.86(1H, d) 8.47(1H, s) 7.64(1H, d) 6.02(1H, m) 5.32-3.36(2H) 5.08(1H, d)
E-29	9.26(1H, s) 8.95(1H, s) 8.93(1H, d) 7.78(1H, d) 5.33(2H, s) (in acetone-d6)
E-30	9.32(1H, s) 8.92(1H, d) 8.51(1H, s) 7.75(1H, d) 5.24(2H, s) 3.82(3H, s)
E-31	9.26(1H, s) 8.86(1H, d) 8.49(1H, s) 7.63(1H, d) 5.21(2H, s) 4.27(2H, q) 1.29(3H, t)
E-39	9.48(1H, s) 9.10(1H, d) 8.58(1H, s) 8.24(1H, d) 7.27-7.43(5H) 5.66(2H, s)
E-74	9.52(1H, s) 8.95(1H, d) 8.18(1H, d) 7.17(1H, d) 6.93(1H, d) 3.89(3H, s)
E-102	9.21(1H, s) 8.87(1H, d) 7.73(1H, d) 7.58(1H, d) 7.09(1H, d) 5.17(2H, s) (in acetone-d6)
E-103	9.25(1H, s) 8.83(1H, d) 7.63(1H, d) 7.10(1H, d) 6.83(1H, d) 5.01(2H, s) 3.81(3H, s)
E-104	9.24(1H, s) 8.82(1H, d) 7.61(1H, d) 7.09(1H, d) 6.82(1H, d) 4.98(2H, s) 4.26(2H, q) 1.29(3H, t)

Cpd	1H-NMR
E-112	9.45(1H, s) 9.03(1H, d) 8.23(1H, d) 7.37-7.45(3H) 7.27(2H, d) 7.14(1H, d) 6.92(1H, d) 5.48(2H, s)
E-537	9.27(1H, s) 8.91(1H, d) 8.27(1H, s) 8.18(1H, d) 7.64-7.77(3H)
F-12	9.34(1H, s) 8.86(1H, d) 7.75(1H, d) 7.64(1H, d) 7.26-7.53(3H) 6.00(1H, m) 5.12-5.32(2H) 5.13(1H, d)
F-39	9.30(1H, s) 8.83(1H, d) 7.74(1H, d) 7.62(1H, d) 7.24-7.43(8H) 5.73(2H, s)
H-1	11.85(1H) 9.08(1H, s) 8.76(1H, d) 7.54(1H, d) 3.58(2H, m) 3.14(2H, m) 2.24(2H, m)
G-1	9.18(1H, s) 8.81(1H, d) 7.58(1H, d) 7.18-7.28(3H) 7.01(1H, d) 4.05(2H, s)
K-1	8.90(1H, d) 8.77(1H, s) 7.63(1H, d) 4.36(2H, t) 3.65(2H, t)

According to a further feature of the present invention there is provided a method for the control of pests at a locus which comprises the application of an effective amount of a compound of formula (I) or a salt thereof. For this purpose, the said compound

5 is normally used in the form of a pesticidal composition (i.e. in association with compatible diluents or carriers and/or surface active agents suitable for use in pesticidal compositions), for example as hereinafter described.

10 The term "compound of the invention" as used hereinafter embraces a 3-pyridylcarboxamide of formula (I) as defined above and a pesticidally acceptable salt thereof.

15 One aspect of the present invention as defined above is a method for the control of pests at a locus. The locus includes, for example, the pest itself, the place (plant, field, forest, orchard, waterway, soil, plant product, or the like) where the pest resides or feeds, or a place susceptible to future infestation by the pest. The compound of the invention may therefore be applied directly to the pest, to the place where the pest resides or feeds, or to the place susceptible to future infestation by the pest. As is evident from the foregoing pesticidal uses, the present invention provides 20 pesticidally active compounds and methods of use of said compounds for the control

of a number of pest species which includes: arthropods, especially insects or mites, or plant nematodes. The compound of the invention may thus be advantageously employed in practical uses, for example, in agricultural or horticultural crops, in forestry, in veterinary medicine or livestock husbandry, or in public health.

5 The compounds of the invention may be used for example in the following applications and on the following pests:

For the control of soil insects, such as corn rootworm, termites (especially for protection of structures), root maggots, wireworms, root weevils, stalkborers, cutworms, root aphids, or grubs. They may also be used to provide activity against

10 plant pathogenic nematodes, such as root-knot, cyst, dagger, lesion, or stem or bulb nematodes, or against mites. For the control of soil pests, for example corn rootworm, the compounds are advantageously applied to or incorporated at an effective rate into the soil in which crops are planted or to be planted or to the seeds or growing plant roots.

15 In the area of public health, the compounds are especially useful in the control of many insects, especially filth flies or other Dipteran pests, such as houseflies, stableflies, soldierflies, hornflies, deerflies, horseflies, midges, punkies, blackflies, or mosquitoes.

In the protection of stored products, for example cereals, including grain or flour,

20 groundnuts, animal feedstuffs, timber or household goods, e.g. carpets and textiles, compounds of the invention are useful against attack by arthropods, more especially beetles, including weevils, moths or mites, for example *Ephestia* spp. (flour moths), *Anthrenus* spp. (carpet beetles), *Tribolium* spp. (flour beetles), *Sitophilus* spp. (grain weevils) or *Acarus* spp. (mites).

25 In the control of cockroaches, ants or termites or similar arthropod pests in infested domestic or industrial premises or in the control of mosquito larvae in waterways, wells, reservoirs or other running or standing water.

For the treatment of foundations, structures or soil in the prevention of the attack on building by termites, for example, *Reticulitermes* spp., *Heterotermes* spp.,

30 *Coptotermes* spp..

In agriculture against adults, larvae and eggs of Lepidoptera (butterflies and moths), e.g. *Heliothis* spp. such as *Heliothis virescens* (tobacco budworm), *Heliothis*

armigera and *Heliothis zea*. Against adults and larvae of Coleoptera (beetles) e.g. *Anthonomus* spp. e.g. *grandis* (cotton boll weevil), *Leptinotarsa decemlineata* (Colorado potato beetle), *Diabrotica* spp. (corn rootworms). Against Heteroptera (Hemiptera and Homoptera) e.g. *Psylla* spp., *Bemisia* spp., *Trialeurodes* spp., *Aphis* spp., *Myzus* spp., *Megoura viciae*, *Phylloxera* spp., *Nephrotettix* spp. (rice leaf hoppers), *Nilaparvata* spp..

Against Diptera e.g. *Musca* spp.. Against Thysanoptera such as *Thrips tabaci*. Against Orthoptera such as *Locusta* and *Schistocerca* spp., (locusts and crickets) e.g. *Gryllus* spp., and *Acheta* spp. for example, *Blatta orientalis*, *Periplaneta americana*, *Blatella germanica*, *Locusta migratoria migratorioides*, and *Schistocerca gregaria*. Against Collembola e.g. *Periplaneta* spp. and *Blatella* spp. (roaches). Against arthropods of agricultural significance such as Acari (mites) e.g. *Acarus siro*, *Argas* spp., *Ornithodoros* spp., *Dermanyssus gallinae*, *Eriophyes ribis*, *Phyllocoptrus oleivora*, *Boophilus* spp., *Rhipicephalus* spp., *Amblyomma* spp., *Hyalomma* spp., *Ixodes* spp., *Psoroptes* spp., *Chorioptes* spp., *Sarcoptes* spp., *Tarsonemus* spp., *Bryobia praetiosa*, *Panonychus* spp., *Tetranychus* spp., *Eotetranychus* spp., *Oligonychus* spp., *Eutetranychus* spp. From the order of the Isopoda, for example, *Oniscus aselus*, *Armadium vulgare*, *Porcellio scaber*.

Against nematodes which attack plants or trees of importance to agriculture, forestry or horticulture either directly or by spreading bacterial, viral, mycoplasma or fungal diseases of the plants. The plant-parasitic nematodes which can be controlled in accordance with the invention include, for example, the root-parasitic soil-dwelling nematodes such as, for example, those of the genera *Meloidogyne* (root knot nematodes, such as *Meloidogyne incognita*, *Meloidogyne hapla* and *Meloidogyne javanica*), *Heterodera* and *Globodera* (cyst-forming nematodes, such as *Globodera rostochiensis*, *Globodera pallida*, *Heterodera trifolii*) and of the genera *Radopholus*, such as *Radopholus similis*, *Pratylenchus* such as *Pratylenchus neglectus*, *Pratylenchus penetrans* and *Pratylenchus curvitatus*;

Tylenchulus such as *Tylenchulus semipenetrans*, *Tylenchorhynchus*, such as *Tylenchorhynchus dubius* and *Tylenchorhynchus claytoni*, *Rotylenchus* such as *Rotylenchus robustus*, *Heliocotylenchus* such as *Heliocotylenchus multicinctus*,

Belonoaimus such as Belonoaimus longicaudatus, Longidorus such as Longidorus elongatus, Trichodorus such as Trichodorus primitivus and Xiphinema such as Xiphinema index.

5 Other nematode genera which can be controlled using the compounds according to the invention are Ditylenchus (stem parasites, such as Ditylenchus dipsaci and Ditylenchus destructor), Aphelenchoides (foliar nematodes, such as Aphelenchoides ritzemabosi) and Anguina (seed nematodes, such as Anguina tritici).

In the field of veterinary medicine or livestock husbandry or in the maintenance of

10 public health against arthropods which are parasitic internally or externally upon vertebrates, particularly warm-blooded vertebrates, for example domestic animals, e.g. cattle, sheep, goats, equines, swine, poultry, dogs or cats, for example Acarina, including ticks (e.g. Ixodes spp., Boophilus spp. e.g. Boophilus microplus, Rhipicephalus spp. e.g. Rhipicephalus appendiculatus Ornithodoros spp. (e.g.

15 Ornithodoros moubata) and mites (e.g. Damalinia spp.); fleas; Diptera (e.g. Aedes spp., Anopheles spp., Musca spp., Hypoderma spp.); Hemiptera.; Dictyoptera (e.g. Periplaneta spp., Blatella spp.); Hymenoptera; for example against infections of the gastro-intestinal tract caused by parasitic nematode worms, for example members of the family Trichostrongylidae.

20 From the class of the helminths, for example, Haemonchus, Trichostrongulus, Ostertagia, Cooperia, Chabertia, Strongyloides, Oesophagostomum, Hyostrongulus, Ancylostoma, Ascaris and Heterakis and also Fasciola.

From the class of the Gastropoda, for example, Deroceras spp., Arion spp.,

25 Lymnaea spp., Galba spp., Succinea spp., Biomphalaria spp., Bulinus spp., Oncomelania spp.

From the class of the Bivalva, for example, Dreissena spp.

30 In practical use for the control of arthropods, especially insects or acarids, or nematode pests of plants, a method, for example, comprises applying to the plants or to the medium in which they grow an effective amount of a compound of the invention. For such a method, the compound of the invention is generally applied to

the locus in which the arthropod or nematode infestation is to be controlled at an effective rate in the range of about 2g to about 1kg of the active compound per hectare of locus treated. Under ideal conditions, depending on the pest to be controlled, a lower rate may offer adequate protection. On the other hand, adverse 5 weather conditions, resistance of the pest or other factors may require that the active ingredient be used at higher rates. The optimum rate depends usually upon a number of factors, for example, the type of pest being controlled, the type or the growth stage of the infested plant, the row spacing or also the method of application. Preferably an effective rate range of the active compound is from about 10g/ha to 10 about 400g/ha, more preferably from about 50g/ha to about 200 g/ha.

When a pest is soil-borne, the active compound generally in a formulated composition, is distributed evenly over the area to be treated (ie, for example broadcast or band treatment) in any convenient manner and is applied at rates from about 10g/ha to about 400g ai/ha, preferably from about 50g/ha to about 200 g ai/ha.

15 When applied as a root dip to seedlings or drip irrigation to plants the liquid solution or suspension contains from about 0.075 to about 1000 mg ai/l, preferably from about 25 to about 200 mg ai/l. Application may be made, if desired, to the field or crop-growing area generally or in close proximity to the seed or plant to be protected from attack. The compound of the invention can be washed into the soil by spraying 20 with water over the area or can be left to the natural action of rainfall. During or after application, the formulated compound can, if desired, be distributed mechanically in the soil, for example by ploughing, disking, or use of drag chains. Application can be prior to planting, at planting, after planting but before sprouting has taken place, or after sprouting.

25 The compound of the invention and methods of control of pests therewith are of particular value in the protection of field, forage, plantation, glasshouse, orchard or vineyard crops, of ornamentals, or of plantation or forest trees, for example: cereals (such as wheat or rice), cotton, vegetables (such as peppers), field crops (such as sugar beets, soybeans or oil seed rape), grassland or forage crops (such as maize 30 or sorghum), orchards or groves (such as of stone or pit fruit or citrus), ornamental plants, flowers or vegetables or shrubs under glass or in gardens or parks, or forest trees (both deciduous and evergreen) in forests, plantations or nurseries.

They are also valuable in the protection of timber (standing, felled, converted, stored or structural) from attack, for example, by sawflies or beetles or termites.

They have applications in the protection of stored products such as grains, fruits, nuts, spices or tobacco, whether whole, milled or compounded into products, from

5 moth, beetle, mite or grain weevil attack. Also protected are stored animal products such as skins, hair, wool or feathers in natural or converted form (e.g. as carpets or textiles) from moth or beetle attack as well as stored meat, fish or grains from beetle, mite or fly attack.

Additionally, the compound of the invention and methods of use thereof are of

10 particular value in the control of arthropods or helminths which are injurious to, or spread or act as vectors of diseases domestic animals, for example those hereinbefore mentioned, and more especially in the control of ticks, mites, lice, fleas, midges, or biting, nuisance or myiasis flies. The compounds of the invention are particularly useful in controlling arthropods or helminths which are present inside

15 domestic host animals or which feed in or on the skin or suck the blood of the animal, for which purpose they may be administered orally, parenterally, percutaneously or topically.

The compositions hereinafter described for application to growing crops or crop growing loci or as a seed dressing may, in general, alternatively be employed in the

20 protection of stored products, household goods, property or areas of the general environment. Suitable means of applying the compounds of the invention include: to growing crops as foliar sprays (for example as an in-furrow spray), dusts, granules, fogs or foams or also as suspensions of finely divided or encapsulated compositions as soil or root treatments by liquid drenches, dusts, granules, smokes

25 or foams; to seeds of crops via application as seed dressings by liquid slurries or dusts;

to animals infested by or exposed to infestation by arthropods or helminths, by parenteral, oral or topical application of compositions in which the active ingredient exhibits an immediate and/or prolonged action over a period of time against the

30 arthropods or helminths, for example by incorporation in feed or suitable orally-ingestible pharmaceutical formulations, edible baits, salt licks, dietary supplements,

pour-on formulations, sprays, baths, dips, showers, jets, dusts, greases, shampoos, creams, wax smears or livestock self-treatment systems; to the environment in general or to specific locations where pests may lurk, including stored products, timber, household goods, or domestic or industrial premises, as 5 sprays, fogs, dusts, smokes, wax-smears, lacquers, granules or baits, or in tricklefeeds to waterways, wells, reservoirs or other running or standing water.

The compounds of the formula (I) can also be employed for controlling harmful organisms in crops of known genetically engineered plants or genetically engineered 10 plants yet to be developed. As a rule, the transgenic plants are distinguished by especially advantageous properties, for example by resistances to particular crop protection agents, resistances to plant diseases or pathogens of plant diseases, such as particular insects or microorganisms such as fungi, bacteria or viruses. Other particular properties concern, for example, the harvested material with regard 15 to quantity, quality, storage properties, composition and specific constituents. Thus, transgenic plants are known where the starch content is increased, or the starch quality is altered, or where the harvested material has a different fatty acid composition.

20 The use in economically important transgenic crops of useful plants and ornamentals is preferred, for example of cereals such as wheat, barley, rye, oats, millet, rice, cassava and maize or else crops of sugar beet, cotton, soya, oilseed rape, potatoes, tomatoes, peas and other types of vegetables.

25 When used in transgenic crops, in particular those which have resistances to insects, effects are frequently observed, in addition to the effects against harmful organisms to be observed in other crops, which are specific for application in the transgenic crop in question, for example an altered or specifically widened spectrum of pests which can be controlled, or altered application rates which may be employed for 30 application.

The invention therefore also relates to the use of compounds of the formula (I) for controlling harmful organisms in transgenic crop plants.

According to a further feature of the present invention there is provided a pesticidal
5 composition comprising one or more compounds of the invention as defined above, in association with, and preferably homogeneously dispersed in one or more compatible pesticidally acceptable diluents or carriers and/or surface active agents [i.e. diluents or carriers and/or surface active agents of the type generally accepted in the art as being suitable for use in pesticidal compositions and which are
10 compatible with compounds of the invention].

In practice, the compounds of the invention most frequently form parts of compositions. These compositions can be employed to control arthropods, especially insects and acarids, or helminths such as plant nematodes. The compositions may be of any type known in the art suitable for application to the
15 desired pest in any premises or indoor or outdoor area. These compositions contain at least one compound of the invention as the active ingredient in combination or association with one or more other compatible components which are for example, solid or liquid carriers or diluents, adjuvants, surface-active-agents, or the like appropriate for the intended use and which are agronomically or medicinally
20 acceptable. These compositions, which may be prepared by any manner known in the art, likewise form a part of this invention.

The compounds of the invention, in their commercially available formulations and in the use forms prepared from these formulations may be present in mixtures with other active substances such as insecticides, attractants, sterilants, acaricides,
25 nematicides, fungicides, growth regulatory substances or herbicides.

The pesticides include, for example, phosphoric esters, carbamates, carboxylic esters, formamidines, tin compounds and materials produced by microorganisms.

30 Preferred components in mixtures are:

1. from the group of the phosphorus compounds

acephate, azamethiphos, azinphos-ethyl, azinphos-methyl, bromophos, bromophos-ethyl, cadusafos (F-67825), chlorethoxyphos, chlorfenvinphos, chlormephos, chlorpyrifos, chlorpyrifos-methyl, demeton, demeton-S-methyl, demeton-S-methyl sulfone, dialifos, diazinon, dichlorvos, dicrotophos, dimethoate, disulfoton, EPN,

5 ethion, ethoprophos, etrimfos, famphur, fenamiphos, fenitriothion, fensulfothion, fenthion, flupyrazofos, fonofos, formothion, fosthiazate, heptenophos, isazophos, isothioate, isoxathion, malathion, methacrifos, methamidophos, methidathion, salithion, mevinphos, monocrotophos, naled, omethoate, oxydemeton-methyl, parathion, parathion-methyl, phentoate, phorate, phosalone, phosfolan,

10 phosphocarb (BAS-301), phosmet, phosphamidon, phoxim, pirimiphos, pirimiphos-ethyl, pirimiphos-methyl, profenofos, propaphos, proetamphos, prothiofos, pyraclofos, pyridapenthion, quinalphos, sulprofos, temephos, terbufos, tebupirimfos, tetrachlorvinphos, thiometon, triazophos, trichlorphon, vamidothion;

15 2. from the group of the carbamates
alanycarb (OK-135), aldicarb, 2-sec-butylphenyl methylcarbamate (BPMC), carbaryl, carbofuran, carbosulfan, cloethocarb, benfuracarb, ethiofencarb, furathiocarb, HCN-801, isoprocarb, methomyl, 5-methyl-m-cumarylbutyryl (methyl)carbamate, oxamyl, pirimicarb, propoxur, thiodicarb, thifanox, 1-methylthio(ethylideneamino)-N-methyl-20 N-(morpholinothio)carbamate (UC 51717), triazamate;

3. from the group of the carboxylic esters
acrinathrin, allethrin, alphametrin, 5-benzyl-3-furylmethyl (E)- (1R)-cis-2,2-dimethyl-3-(2-oxothiolan-3-ylidenemethyl)cyclopropanecarboxylate, beta-cyfluthrin, alpha-25 cypermethrin, beta-cypermethrin, bioallethrin, bioallethrin ((S)-cyclopentylisomer), bioresmethrin, bifenthrin, (RS)-1-cyano-1-(6-phenoxy-2-pyridyl)methyl (1RS)-trans-3-(4-tert-butylphenyl)-2,2-dimethylcyclopropanecarboxylate (NCI 85193), cycloprothrin, cyfluthrin, cyhalothrin, cythithrin, cypermethrin, cyphenothrin, deltamethrin, empenthrin, esfenvalerate, fenfluthrin, fenpropathrin, fenvalerate, flucythrinate,

30 flumethrin, fluvalinate (D isomer), imiprothrin (S-41311), lambda-cyhalothrin, permethrin, phenothrin (® isomer), prallethrin, pyrethrins (natural products),

resmethrin, tefluthrin, tetramethrin, theta-cypermethrin, tralomethrin, transfluthrin, zeta-cypermethrin (F-56701);

4. from the group of the amidines

5 amitraz, chlordimeform;

5. from the group of the tin compounds

cyhexatin, fenbutatin oxide;

10 6. others

abamectin, ABG-9008, acetamiprid, acequinocyl, Anagrapha falcitera, AKD-1022, AKD-3059, ANS-118, azadirachtin, Bacillus thuringiensis, Beauveria bassiana, bensultap, bifenazate, binapacryl, BJL-932, bromopropylate, BTG-504, BTG-505, buprofezin, camphechlor, cartap, chlorobenzilate, chlorfenapyr, chlorfluazuron, 2-15 (4-chlorophenyl)-4,5-diphenylthiophene (UBI-T 930), chlorfentezine, chlorproxyfen, chromafenozone, clothianidine, 2-naphthylmethyl cyclopropanecarboxylate (Ro12-0470), cyromazin, diacloden (thiamethoxam), diafenthiuron, DBI-3204, ethyl 2-chloro-N-(3,5-dichloro-4-(1,1,2,3,3,3-hexafluoro-1-propyloxy)phenyl)carbamoyl)-2-carboximidate, DDT, dicofol, diflubenzuron, N-(2,3-dihydro-3-methyl-1,3-thiazol-2-ylidene)-2,4-xylidine, dihydroxymethyldihydroxypyrrolidine, dinobuton, dinocap, diofenolan, emamectin benzoate, endosulfan, ethiprole (sulfethiprole), ethofenprox, etoxazole, fenazaquin, fenoxy carb, fipronil, fluazuron, flumite (flufenzine, SZI-121), 2-fluoro-5-(4-(4-ethoxyphenyl)-4-methyl-1-pentyl)diphenyl ether (MTI 800), granulosis and nuclear polyhedrosis viruses, fenpyroximate, fenthiocarb, 25 fluacrypyrim, flubenzimine, flubrocythrinate, flucycloxuron, flufenoxuron, flufenzine, flufenprox, fluproxyfen, gamma-HCH, halofenprox, hexaflumuron (DE_473), hexythiazox, HOI-9004, hydramethylnon (AC 217300), IKI-220, indoxacarb, ivermectin, L-14165, imidacloprid, indoxacarb (DPX-MP062), kanemite (AKD-2023), lufenuron, M-020, M-020, methoxyfenozide, milbemectin, NC-196, 30 neemgard, nidinoterfuran, nitenpyram, 2-nitromethyl-4,5-dihydro-6H-thiazine (DS 52618), 2-nitromethyl-3,4-dihydrothiazole (SD 35651), 2-nitromethylene-1,2-thiazinan-3-ylcarbamaldehyde (WL 108477), novaluron, pirydaryl, propargite,

protrifenbut, pymethrozine, pyridaben, pyrimidifen, pyriproxyfen, NC-196, NC-1111, NNI-9768, novaluron (MCW-275), OK-9701, OK-9601, OK-9602, OK-9802, R-195, RH-0345, RH-2485, RYI-210, S-1283, S-1833, SI-8601, silafluofen, silomadine (CG-177), spinosad, spirodiclofen, SU-9118, tebufenozide, tebufenpyrad, teflubenzuron, 5 tetradifon, tetrasul, thiacloprid, thiocyclam, thiamethoxam, tolfenpyrad, triazamate, triethoxyspinosyn A, triflumuron, verbutin, vertalec (mykotal), YI-5301.

The abovementioned components for combinations are known active substances, many of which are described in Ch.R Worthing, S.B. Walker, The Pesticide Manual, 10 12th Edition, British Crop Protection Council, Farnham 2000.

The effective use doses of the compounds employed in the invention can vary within wide limits, particularly depending on the nature of the pest to be eliminated or degree of infestation, for example, of crops with these pests. In general, the 15 compositions according to the invention usually contain about 0.05 to about 95% (by weight) of one or more active ingredients according to the invention, about 1 to about 95% of one or more solid or liquid carriers and, optionally, about 0.1 to about 50% of one or more other compatible components, such as surface-active agents or the like. In the present account, the term "carrier" denotes an organic or inorganic ingredient, 20 natural or synthetic, with which the active ingredient is combined to facilitate its application, for example, to the plant, to seeds or to the soil. This carrier is therefore generally inert and it must be acceptable (for example, agronomically acceptable, particularly to the treated plant).

The carrier may be a solid, for example, clays, natural or synthetic silicates, silica, 25 resins, waxes, solid fertilizers (for example ammonium salts), ground natural minerals, such as kaolins, clays, talc, chalk, quartz, attapulgite, montmorillonite, bentonite or diatomaceous earth, or ground synthetic minerals, such as silica, alumina, or silicates especially aluminium or magnesium silicates. As solid carriers for granules the following are suitable: crushed or fractionated natural rocks such as 30 calcite, marble, pumice, sepiolite and dolomite; synthetic granules of inorganic or organic meals; granules of organic material such as sawdust, coconut shells, corn cobs, corn husks or tobacco stalks; kieselguhr, tricalcium phosphate, powdered cork,

or absorbent carbon black; water soluble polymers, resins, waxes; or solid fertilizers. Such solid compositions may, if desired, contain one or more compatible wetting, dispersing, emulsifying or colouring agents which, when solid, may also serve as a diluent.

- 5 The carrier may also be liquid, for example: water; alcohols, particularly butanol or glycol, as well as their ethers or esters, particularly methylglycol acetate; ketones, particularly acetone, cyclohexanone, methylethyl ketone, methylisobutylketone, or isophorone; petroleum fractions such as paraffinic or aromatic hydrocarbons, particularly xylenes or alkyl naphthalenes; mineral or vegetable oils; aliphatic
- 10 chlorinated hydrocarbons, particularly trichloroethane or methylene chloride; aromatic chlorinated hydrocarbons, particularly chlorobenzenes; water-soluble or strongly polar solvents such as dimethylformamide, dimethyl sulphoxide, or N-methylpyrrolidone; liquefied gases; or the like or a mixture thereof.

The surface-active agent may be an emulsifying agent, dispersing agent or wetting agent of the ionic or non-ionic type or a mixture of such surface-active agents.

- 15 Amongst these are e.g., salts of polyacrylic acids, salts of lignosulphonic acids, salts of phenolsulphonic or naphthalenesulphonic acids, polycondensates of ethylene oxide with fatty alcohols or fatty acids or fatty esters or fatty amines, substituted phenols (particularly alkylphenols or arylphenols), salts of sulphosuccinic acid esters,
- 20 taurine derivatives (particularly alkyltaurates), phosphoric esters of alcohols or of polycondensates of ethylene oxide with phenols, esters of fatty acids with polyols, or sulphate, sulphonate or phosphate functional derivatives of the above compounds.

The presence of at least one surface-active agent is generally essential when the active ingredient and/or the inert carrier are only slightly water soluble or are not water soluble and the carrier agent of the composition for application is water.

- 25 Compositions of the invention may further contain other additives such as adhesives or colorants. Adhesives such as carboxymethylcellulose or natural or synthetic polymers in the form of powders, granules or lattices, such as arabic gum, polyvinyl alcohol or polyvinyl acetate, natural phospholipids, such as cephalins or lecithins, or
- 30 synthetic phospholipids can be used in the formulations. It is possible to use colorants such as inorganic pigments, for example: iron oxides, titanium oxides or Prussian Blue; organic dyestuffs, such as alizarin dyestuffs, azo dyestuffs or metal

phthalocyanine dyestuffs; or trace nutrients such as salts of iron, manganese, boron, copper, cobalt, molybdenum or zinc.

For their agricultural application, the compounds of the invention are therefore generally in the form of compositions, which are in various solid or liquid forms.

- 5 Solid forms of compositions which can be used are dusting powders (with a content of the compound of the invention, ranging up to 80%), wettable powders or granules (including water dispersible granules), particularly those obtained by extrusion, compacting, impregnation of a granular carrier, or granulation starting from a powder (the content of the compound of the invention, in these wettable powders or granules
- 10 being between about 0.5 and about 80%). Solid homogenous or heterogenous compositions containing one or more compounds of the invention, for example granules, pellets, briquettes or capsules, may be used to treat standing or running water over a period of time. A similar effect may be achieved using trickle or intermittent feeds of water dispersible concentrates as described herein.
- 15 Liquid compositions, for example, include aqueous or non-aqueous solutions or suspensions (such as emulsifiable concentrates, emulsions, flowables, dispersions, or solutions) or aerosols. Liquid compositions also include, in particular, emulsifiable concentrates, dispersions, emulsions, flowables, aerosols, wettable powders (or powder for spraying), dry flowables or pastes as forms of compositions which are
- 20 liquid or intended to form liquid compositions when applied, for example as aqueous sprays (including low and ultra-low volume) or as fogs or aerosols.

Liquid compositions, for example, in the form of emulsifiable or soluble concentrates most frequently comprise about 5 to about 80% by weight of the active ingredient, while the emulsions or solutions which are ready for application contain, in their

- 25 case, about 0.01 to about 20% of the active ingredient. Besides the solvent, the emulsifiable or soluble concentrates may contain, when required, about 2 to about 50% of suitable additives, such as stabilizers, surface-active agents, penetrating agents, corrosion inhibitors, colorants or adhesives. Emulsions of any required concentration, which are particularly suitable for application, for example, to plants,
- 30 may be obtained from these concentrates by dilution with water. These compositions are included within the scope of the compositions which may be

employed in the present invention. The emulsions may be in the form of water-in-oil or oil-in-water type and they may have a thick consistency.

The liquid compositions of this invention may, in addition to normal agricultural use applications be used for example to treat substrates or sites infested or liable to

5 infestation by arthropods (or other pests controlled by compounds of this invention) including premises, outdoor or indoor storage or processing areas, containers or equipment or standing or running water.

All these aqueous dispersions or emulsions or spraying mixtures can be applied, for example, to crops by any suitable means, chiefly by spraying, at rates which are

10 generally of the order of about 100 to about 1,200 liters of spraying mixture per hectare, but may be higher or lower (eg. low or ultra-low volume) depending upon the need or application technique. The compound or compositions according to the invention are conveniently applied to vegetation and in particular to roots or leaves having pests to be eliminated. Another method of application of the compounds or

15 compositions according to the invention is by chemigation, that is to say, the addition of a formulation containing the active ingredient to irrigation water. This irrigation may be sprinkler irrigation for foliar pesticides or it can be ground irrigation or underground irrigation for soil or for systemic pesticides.

The concentrated suspensions, which can be applied by spraying, are prepared so 20 as to produce a stable fluid product which does not settle (fine grinding) and usually contain from about 10 to about 75% by weight of active ingredient, from about 0.5 to about 30% of surface-active agents, from about 0.1 to about 10% of thixotropic agents, from about 0 to about 30% of suitable additives, such as anti-foaming agents, corrosion inhibitors, stabilizers, penetrating agents, adhesives and, as the 25 carrier, water or an organic liquid in which the active ingredient is poorly soluble or insoluble. Some organic solids or inorganic salts may be dissolved in the carrier to help prevent settling or as antifreezes for water.

The wettable powers (or powder for spraying) are usually prepared so that they contain from about 10 to about 80% by weight of active ingredient, from about 20 to 30 about 90% of a solid carrier, from about 0 to about 5% of a wetting agent, from about 3 to about 10% of a dispersing agent and, when necessary, from about 0 to about 80% of one or more stabilizers and/or other additives, such as penetrating agents,

adhesives, anti-caking agents, colorants, or the like. To obtain these wettable powders, the active ingredient is thoroughly mixed in a suitable blender with additional substances which may be impregnated on the porous filler and is ground using a mill or other suitable grinder. This produces wettable powders, the 5 wettability and the suspendability of which are advantageous. They may be suspended in water to give any desired concentration and this suspension can be employed very advantageously in particular for application to plant foliage. The "water dispersible granules (WG)" (granules which are readily dispersible in water) have compositions which are substantially close to that of the wettable 10 powders. They may be prepared by granulation of formulations described for the wettable powders, either by a wet route (contacting finely divided active ingredient with the inert filler and a little water, e.g. 1 to 20% by weight, or with an aqueous solution of a dispersing agent or binder, followed by drying and screening), or by a dry route (compacting followed by grinding and screening).

15 The rates and concentrations of the formulated compositions may vary according to the method of application or the nature of the compositions or use thereof. Generally speaking, the compositions for application to control arthropod or helminth pests usually contain from about 0.00001% to about 95%, more particularly from about 0.0005% to about 50% by weight of one or more compounds of the invention, or of 20 total active ingredients (that is to say the compounds of the invention, together with other substances toxic to arthropods or helminths, synergists, trace elements or stabilizers). The actual compositions employed and their rate of application will be selected to achieve the desired effect(s) by the farmer, livestock producer, medical or veterinary practitioner, pest control operator or other person skilled in the art.

25 Solid or liquid compositions for application topically to animals, timber, stored products or household goods usually contain from about 0.00005% to about 90%, more particularly from about 0.001% to about 10%, by weight of one or more compounds of the invention. For administration to animals orally or parenterally, including percutaneously solid or liquid compositions, these normally contain from 30 about 0.1% to about 90% by weight of one or more compounds of the invention. Medicated feedstuffs normally contain from about 0.001% to about 3% by weight of one or more compounds of the invention. Concentrates or supplements for mixing

with feedstuffs normally contain from about 5% to about 90%, preferably from about 5% to about 50%, by weight of one or more compounds of the invention. Mineral salt licks normally contain from about 0.1% to about 10% by weight of one or more compounds of formula (I) or pesticidally acceptable salts thereof.

5 Dusts or liquid compositions for application to livestock, goods, premises or outdoor areas may contain from about 0.0001% to about 15%, more especially from about 0.005% to about 2.0%, by weight, of one or more compounds of the invention. Suitable concentrations in treated waters are between about 0.0001 ppm and about 20 ppm, more particularly about 0.001 ppm to about 5.0 ppm. of one or more

10 compounds of the invention, and may be used therapeutically in fish farming with appropriate exposure times. Edible baits may contain from about 0.01% to about 5%, preferably from about 0.01% to about 1.0%, by weight, of one or more compounds of the invention.

When administered to vertebrates parenterally, orally or by percutaneous or other means, the dosage of compounds of the invention, will depend upon the species, age, or health of the vertebrate and upon the nature and degree of its actual or potential infestation by arthropod or helminth pests. A single dose of about 0.1 to about 100 mg, preferably about 2.0 to about 20.0 mg, per kg body weight of the animal or doses of about 0.01 to about 20.0 mg, preferably about 0.1 to about 5.0 mg, per kg body weight of the animal per day, for sustained medication, are generally suitable by oral or parenteral administration. By use of sustained release formulations or devices, the daily doses required over a period of months may be combined and administered to animals on a single occasion.

The following composition EXAMPLES 2A - 2M illustrate compositions for use against arthropods, especially insects or acarids, or helminths such as plant nematodes, which comprise, as active ingredient, compounds of the invention, such as those described in preparative examples. The compositions described in EXAMPLES 2A - 2M can each be diluted to give a sprayable composition at concentrations suitable for use in the field. Generic chemical descriptions of the ingredients (for which all of the following percentages are in weight percent), used in the composition EXAMPLES 2A - 2M exemplified below, are as follows:

Trade Name	Chemical Description
Ethyilan BCP	Nonylphenol ethylene oxide condensate
Soprophor BSU	Tristyrylphenol ethylene oxide condensate
Arylan CA	A 70% w/v solution of calcium dodecylbenzenesulfonate
5 Solvesso 150	Light C10 aromatic solvent
Arylan S	Sodium dodecylbenzenesulfonate
Darvan NO ₂	Sodium lignosulphonate
Celite PF	Synthetic magnesium silicate carrier
Sopropon T36	Sodium salts of polycarboxylic acids
10 Rhodigel 23	Polysaccharide xanthan gum
Bentone 38	Organic derivative of magnesium montmorillonite
Aerosil	Microfine silicon dioxide

EXAMPLE 2A

15 A water soluble concentrate is prepared with the composition as follows:

Active ingredient	7%
Ethyilan BCP	10%
N-methylpyrrolidone	83%

To a solution of Ethylan BCP dissolved in a portion of N-methylpyrrolidone is added the active ingredient with heating and stirring until dissolved. The resulting solution is made up to volume with the remainder of the solvent.

20 EXAMPLE 2B

An emulsifiable concentrate (EC) is prepared with the composition as follows:

Active ingredient	25%(max)
Soprophor BSU	10%
Arylan CA	5%
25 N-methylpyrrolidone	50%
Solvesso 150	10%

The first three components are dissolved in N-methylpyrrolidone and to this is then added the Solvesso 150 to give the final volume.

EXAMPLE 2C

A wettable powder (WP) is prepared with the composition as follows:

Active ingredient	40%
Arylan S	2%
Darvan NO ₂	5%
Celite PF	53%

The ingredients are mixed and ground in a hammer-mill to a powder with a particle size of less than 50 microns.

5

EXAMPLE 2D

An aqueous-flowable formulation is prepared with the composition as follows:

Active ingredient	40.00%
Ethylan BCP	1.00%
Sopropen T360.	0.20%
Ethylene glycol	5.00%
Rhodigel 230.	0.15%
Water	53.65%

The ingredients are intimately mixed and are ground in a bead mill until a mean particle size of less than 3 microns is obtained.

10

EXAMPLE 2E

An emulsifiable suspension concentrate is prepared with the composition as follows:

Active ingredient	30.0%
Ethylan BCP	10.0%
Bentone 38	0.5%
Solvesso 150	59.5%

The ingredients are intimately mixed and ground in a beadmill until a mean particle size of less than 3 microns is obtained.

15

EXAMPLE 2F

A water dispersible granule is prepared with the composition as follows:

Active ingredient	30%
Darvan No 2	15%
Arylan S	8%
Celite PF	47%

The ingredients are mixed, micronized in a fluid-energy mill and then granulated in a rotating pelletizer by spraying with water (up to 10%). The resulting granules are
5 dried in a fluid-bed drier to remove excess water.

EXAMPLE 2G

A dusting powder is prepared with the composition as follows:

Active ingredient	1 to 10%
Talc powder-superfine	99 to 90%

The ingredients are intimately mixed and further ground as necessary to achieve a
10 fine powder. This powder may be applied to a locus of arthropod infestation, for example refuse dumps, stored products or household goods or animals infested by, or at risk of infestation by, arthropods to control the arthropods by oral ingestion. Suitable means for distributing the dusting powder to the locus of arthropod infestation include mechanical blowers, handshakers or livestock self treatment
15 devices.

EXAMPLE 2H

An edible bait is prepared with the composition as follows:

Active ingredient	0.1 to 1.0%
Wheat flour	80%
Molasses	19.9 to 19%

The ingredients are intimately mixed and formed as required into a bait form. This
20 edible bait may be distributed at a locus, for example domestic or industrial premises, e.g. kitchens, hospitals or stores, or outdoor areas, infested by arthropods, for example ants, locusts, cockroaches or flies, to control the arthropods by oral ingestion.

EXAMPLE 2I

A solution formulation is prepared with a composition as follows:

Active ingredient	15%
Dimethyl sulfoxide	85%

The active ingredient is dissolved in dimethyl sulfoxide with mixing and or heating as required. This solution may be applied percutaneously as a pour-on application to domestic animals infested by arthropods or, after sterilization by filtration through a polytetrafluoroethylene membrane (0.22 micrometer pore size), by parenteral injection, at a rate of application of from 1.2 to 12 ml of solution per 100 kg of animal body weight.

10

EXAMPLE 2J

A wettable powder is prepared with the composition as follows:

Active ingredient	50%
Ethylan BCP	5%
Aerosil	5%
Celite PF	40%

The Ethylan BCP is absorbed onto the Aerosil which is then mixed with the other ingredients and ground in a hammer-mill to give a wettable powder, which may be diluted with water to a concentration of from 0.001% to 2% by weight of the active compound and applied to a locus of infestation by arthropods, for example, dipterous larvae or plant nematodes, by spraying, or to domestic animals infested by, or at risk of infection by arthropods, by spraying or dipping, or by oral administration in drinking water, to control the arthropods.

20

EXAMPLE 2K

A slow release bolus composition is formed from granules containing the following components in varying percentages(similar to those described for the previous compositions) depending upon need:

Active ingredient

Density agent

Slow-release agent

Binder

The intimately mixed ingredients are formed into granules which are compressed into a bolus with a specific gravity of 2 or more. This can be administered orally to ruminant domestic animals for retention within the reticulo-rumen to give a continual slow release of active compound over an extended period of time to control

5 infestation of the ruminant domestic animals by arthropods.

EXAMPLE 2L

A slow release composition in the form of granules, pellets, bricklettes or the like can be prepared with compositions as follows:

Active ingredient 0.5 to 25%

Polyvinyl chloride 75 to 99.5%

Diethyl phthalate (plasticizer)

10 The components are blended and then formed into suitable shapes by melt-extrusion or molding. These composition are useful, for example, for addition to standing water or for fabrication into collars or eartags for attachment to domestic animals to control pests by slow release.

15 EXAMPLE 2M

A water dispersible granule is prepared with the composition as follows:

Active ingredient	85%(max)
Polyvinylpyrrolidone	5%
Attapulgite clay	6%
Sodium lauryl sulfate	2%
Glycerine	2%

The ingredients are mixed as a 45% slurry with water and wet milled to a particle size of 4 microns, then spray-dried to remove water.

METHODS OF PESTICIDAL USE

The following representative test procedures, using compounds of the invention, were conducted to determine the parasiticidal and pesticidal activity of compounds of the invention.

5

METHOD A:

Germinated field bean seeds (*Vicia faba*) with seed roots were transferred into brown glass bottles filled with tap water and then populated with about 100 black bean aphids (*Aphis fabae*). Plants and aphids were then dipped into an aqueous solution

10 of the formulated preparation to be examined for 5 seconds. After they had drained, plants and animals were stored in a climatized chamber (16 hours of light/day, 25°C, 40-60% relative atmospheric humidity). After 3 and 6 days of storage, the effect of the preparation on the aphids was determined. At a concentration of 100 ppm (based 15 on the content of active compound), the following Compounds caused a mortality of at least 50% among the aphids:

A-53, A-59, A-67, A-72, A-94, A-95, A-102, A-229, A-230, A-237, A-437, A-438, A-439, A-458, A-460, A-489, A-576, A-714, A-715, A-724, A-733, A-776, A-1063, A-1108, A-1145, A-1275, A-1279, A-1321, A-1322, A-1324, A-1325, A-1329, A-1432, A-1437, A-1438, C-43, D-2, D-3, D-5, D-8, D-104, D-111, D-143, D-210, D-246, D-269, D-313, D-349, E-74, G-1, H-1 and K-1.

20

METHOD B:

Germinated field bean seeds (*Vicia faba*) with seed roots were transferred into brown glass bottles filled with tap water. Four milliliters of an aqueous solution of the 25 formulated preparation to be examined were pipetted into the brown glass bottle.

The field bean was then heavily populated with about 100 black bean aphids (*Aphis fabae*). Plants and aphids were then stored in a climatized chamber (16 hours of light/day, 25°C, 40-60% relative atmospheric humidity). After 3 and 6 days of storage, the root-systemic effect of the preparation on the aphids was determined. At a concentration of 10 ppm (based on the content of active compound), The following 30 Compounds caused a mortality of at least 80% among the aphids, by root-systemic action:

A-53, A-54, A-56, A-59, A-67, A-72, A-84, A-89, A-94, A-95, A-102, A-438, A-576, A-714, A-715, A-724, A-733, A-740, A-776, A-1063, A-1108, A-1145, A-1275, A-1321, A-1322, A-1324, A-1325, A-1329, A-1332, C-43, D-2, D-3, D-5, D-104, D-111, D-210, D-269, D-313, D-372, E-1, E-74, G-1, H-1 and K-1.